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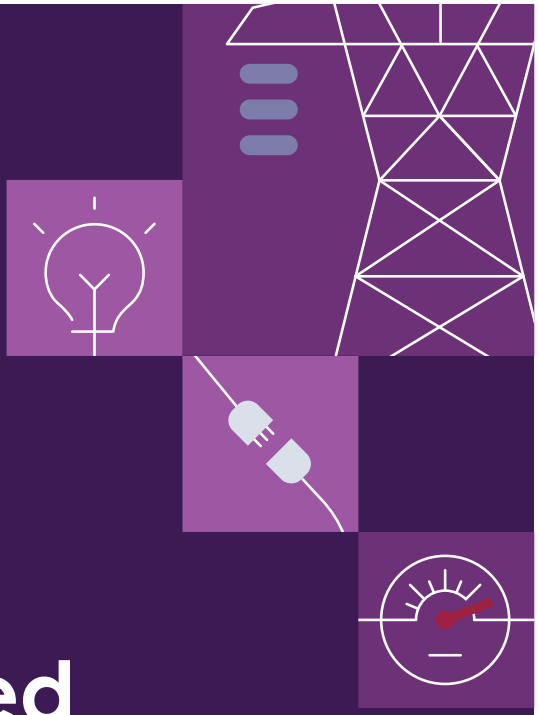
AUSTRALIAN ENERGY MARKET OPERATOR



Development of the Voluntarily Scheduled Resource Guidelines

Part of the Integrating price-responsive resources (IPRR) reform implementation project

Consultation paper

20 February 2025

aemo.com.au

New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

Australian Energy Market Operator Ltd ABN 94 072 010 327

Explanatory statement and consultation notice

This consultation paper commences the process for the development of the Voluntarily Scheduled Resource (VSR) Guidelines (the VSR Guidelines or the Guidelines). The Guidelines will be developed via the standard rules consultation procedure described in National Electricity Rules (NER) 8.9.2. AEMO is developing the Guidelines as part of the implementation of the Integrating price-responsive resources (IPRR) into the National Electricity Market (NEM) reform project.

On 19 December 2024, the Australian Energy Market Commission (AEMC) made a final rule (National Electricity Amendment (Integrating price-responsive resources into the NEM) Rule 2024) to allow aggregated consumer energy resources (CER) to be scheduled and dispatchable in the NEM. The operation of the new "IPRR dispatch mode" will commence on 23 May 2027.

NER 11.180.3(a)(2) stipulates that the Guidelines must be developed and published by 31 December 2025. However, to enable the necessary AEMO and participant system development and testing, the Final Guidelines will be published by the 28th August 2025.

The contents of the Guidelines are specified in NER 3.10A.3 (provided in section 2.2 of this consultation paper).

This consultation paper sets out AEMO's initial considerations and positions in respect of the requirements and processes specified in NER 3.10A.3, for stakeholder consultation. AEMO intends to provide a draft of the Guidelines at the draft report stage of this consultation.

Consultation notice

AEMO is now consulting on the matters outlined in this consultation paper. Written submissions from interested persons on the issues identified in this paper are invited to NEMReform@aemo.com.au by **5:00pm (Melbourne time) on 20 March 2025**.

Submissions may make alternative or additional proposals you consider may better meet the objectives of this consultation and the National Electricity Objective in section 7 of the National Electricity Law. Please include supporting reasons.

Before making a submission, please read and take note of AEMO's consultation submission guidelines, which can be found at https://aemo.com.au/consultations. Subject to those guidelines, submissions will be published on AEMO's website.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so. Material identified as confidential may be given less weight in the decision-making process than material that is published.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Interested persons can request a meeting with AEMO to discuss any particularly complex, sensitive or confidential matters relating to the proposal. Please refer to NER 8.9.1(k). Meeting requests must be received by the end of the submission period and include reasons for the request. We will try to accommodate reasonable meeting requests but, where appropriate, we may hold joint meetings with other stakeholders or convene a meeting with a broader industry group. Subject to confidentiality restrictions, AEMO will publish a summary of matters discussed at stakeholder meetings.

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1. Stakeholder consultation process

As required by NER 3.10A, AEMO is consulting on the development of the VSR Guidelines. The Guidelines will be developed via the standard rules consultation procedure in specified NER 8.9.2.

Please note that this document uses terms defined in the NER, which are intended to have the same meanings. There is a glossary of additional terms and abbreviations in Appendix A.

AEMO's indicative process and timeline for this consultation are outlined below. Future dates may be adjusted and additional steps may be included if necessary, as the consultation progresses.

Consultation steps	Dates
Consultation paper published	Thursday 20 February 2025
Public forum	Friday 28 February 2025
Submissions due on consultation paper	Thursday 20 March 2025
Draft report published, including draft Guidelines	Thursday 22 May 2025
Submissions due on draft report	Thursday 26 June 2025
Final report and Guidelines published	Thursday 28 August 2025

1.1. Register for the upcoming public forum

AEMO has scheduled a public forum to discuss the issues raised in this consultation paper, on 28 February, from 10am–11:30am AEDT. Please **click here** to register for that event.

2. Background

2.1. Integrating price-responsive resources into the NEM

On 19 December 2024, the AEMC made a final determination in the National Electricity Amendment (Integrating price-responsive resources into the NEM) rule change, which will allow aggregated CER, distributed energy resources and price-responsive loads to be scheduled and dispatchable in the NEM. Currently, unscheduled price-responsive resources are not able to participate in dispatch, meaning they are not effectively integrated into the NEM's planning and operation functions and are not visible to AEMO or the electricity market. Inability to participate in dispatch and energy markets, therefore, restricts these currently unscheduled price-responsive resources from contributing to the real-time matching of supply and demand and from potential value streams accessible in the market that could enhance benefits to consumers who own CER, such as regulation frequency control ancillary services (FCAS).

The AEMC's final rule is the last stage of the rule change request process that was initiated by AEMO's January 2023 rule change proposal for the 'Scheduled Lite Mechanism'. This rule change request was developed in accordance with the final recommendations made by the Energy Security Board (ESB) to Energy Ministers as part of its Post 2025 Market Design work.

The AEMC's final rule establishes a framework, called "dispatch mode", that allows for aggregated resources, such as virtual power plants, small stand-alone generators or energy storage systems, community batteries, flexible loads and other price-responsive resources to participate in NEM dispatch. This includes the ability to bid into the market, set spot prices, receive and follow dispatch instructions, and participate in energy markets.

The IPRR dispatch mode commences in May 2027. Alongside the dispatch mode framework, the AEMC's final rule includes an incentive framework to encourage participation in the IPRR mechanism. In addition, the AEMC has mandated a monitoring and reporting framework, to allow AEMO (and other stakeholders) to understand and manage the impact of unscheduled price-responsive energy resources on demand forecasting processes and market outcomes. AEMO will be consulting separately on both the incentive framework and monitoring and reporting framework, with information on how to engage on these consultations accessible on AEMO's Integrating price-responsive resources website under its NEM Reform program.

2.2. NER requirements

This section provides the requirements placed on AEMO by the AEMC's final IPRR rule in relation to the VSR Guidelines.

NER 3.10A.3 states:

(a) *AEMO* must develop and publish, and may amend, the *voluntarily scheduled resource guidelines* in accordance with the *Rules consultation procedures*.

(b) The *voluntarily scheduled resource guidelines* must specify:

(1) requirements for nominating one or more *qualifying resources* as a *voluntarily scheduled resource* in accordance with clause 3.10A.1;

(2) the requirements and process for aggregation of *voluntarily scheduled resources* in accordance with clause 3.8.3, including the circumstances in which *AEMO* may request *Voluntarily Scheduled Resource Providers* that have aggregated *voluntarily scheduled resources* to declare individual *qualifying resource* availability and operating status to *AEMO* pursuant to clause 3.8.3(f1) or to disaggregate pursuant to clause 3.8.3(b6);

(3) a requirement that the *Voluntarily Scheduled Resource Provider* is *the financially responsible Market Participant* in respect of a *market connection point* nominated as a *voluntarily scheduled resource*;

(4) a framework for testing the capabilities of *qualifying resources* prior to their request for nomination as a *voluntarily scheduled resource*;

(5) operational requirements for a *voluntarily scheduled resource* including:

(i) the types of data to be provided by a *Voluntarily Scheduled Resource Provider* to *AEMO* and by *AEMO* to a *Voluntarily Scheduled Resource Provider*;

(ii) information about the requirements for telemetry and communications equipment;

(iii) the minimum threshold for nameplate rating, or combined nameplate rating, of a *voluntarily scheduled resource*;

(iv) the dispatch conformance criteria; and

(v) the acceptable types of *metering installation* for participating *market connection points*;

(6) the processes for:

(i) *Voluntarily Scheduled Resource Providers* to share data with *Distribution Network Service Providers* or (where relevant) *Transmission Network Service Providers*; and

(ii) the disclosure of data collected by *AEMO* from *Voluntarily Scheduled Resource Providers* to *Distribution Network Service Providers* and *Transmission Network Service Providers* (as applicable), including obligations of confidentiality that will apply to any such disclosures.

(7) the matters required by clause 3.10A.2; and

(8) any other information that AEMO considers reasonably necessary.

(c) The *voluntarily scheduled resource guidelines* must also specify zonal aggregation requirements including:

(1) a methodology for determining zones in which *voluntarily scheduled resources* participate in *central dispatch* as well as the *loss factor* that is to apply in each zone for the purpose of clause 3.8.6(h);

(2) requirements and conditions on *Voluntarily Scheduled Resource Providers* for aggregating *qualifying resources* as *voluntarily scheduled resources* in accordance with clause 3.8.3 (including that all *qualifying resources* that form part of an aggregated *voluntarily scheduled resource* must be within the same zone);

(3) guidance for *Voluntarily Scheduled Resource Providers* on processes for the aggregation of *voluntarily scheduled resources* into the zones determined under subparagraph (1);

(4) validation processes for *AEMO*; and

(5) where *AEMO* proposes to implement a change to any zone in which *voluntarily scheduled resources* participate in central dispatch (including implementing a new zone), guidance for *Voluntarily Scheduled Resource Providers* on the processes and timing for the implementation of such change in zones, including the minimum lead time before the change would take effect.

(d) In developing the *voluntarily scheduled resource guidelines*, *AEMO*:

(1) must balance costs of participation for voluntarily scheduled resources in central dispatch with AEMO's costs for facilitating participation by voluntarily scheduled resources in central dispatch;

(2) must facilitate ease of participation in central dispatch for voluntarily scheduled resources;

(3) may apply restrictions on voluntarily scheduled resources in central dispatch only to the extent reasonably necessary for AEMO to manage power system security and reliability; and

(4) may have regard to any other matter determined by AEMO, acting reasonably, and which AEMO must specify in the voluntarily scheduled resource guidelines.

(e) *AEMO* may from time to time review the *voluntarily scheduled resource guidelines* and, if at the conclusion of that review, *AEMO* considers that changes are necessary or desirable, *AEMO* must amend the *voluntarily scheduled resource guidelines* in accordance with the *Rules consultation procedures*.

3. Elements of the VSR Guidelines

3.1. Purpose of this consultation and the VSR Guidelines

This consultation paper is intended to facilitate informed industry comment and input on the development of the draft VSR Guidelines. The Guidelines will provide prospective voluntarily scheduled resource providers (VSRPs), as well as other energy market stakeholders including network service providers (NSPs), retailers, aggregators, and owners/operators of VSRs, with the technical, market and regulatory requirements of participation in the dispatch mode.

As such, this consultation paper will serve the dual purpose of consulting on the requirements and settings that AEMO proposes across the various participation requirements of dispatch mode, and to consult with stakeholders, including prospective VSRPs, on the format and accessibility of the Guidelines as a means of best supporting the implementation of the IPRR reform.

NER 11.180.3(a)(2) stipulates that the Guidelines must be developed and published by 31 December 2025. However, to enable the necessary AEMO and participant system development and testing, the final Guidelines will be published by the 28th August 2025.

3.2. Proposed effective date

AEMO proposes to make the VSR Guidelines effective from 23 May 2027. This is the date on which the new NER provisions covering dispatch mode for VSRs come into effect.

Question 1
1. What should be the effective date of the VSR Guidelines and why?

3.3. Balancing ease of participation and power system security

NER 3.10A.3(d) stipulates matters that AEMO must consider in developing the VSR Guidelines. In particular, AEMO must facilitate ease of participation in central dispatch for VSRs (NER 3.10A.3(d)(2)) and may only apply restrictions to the 'extent reasonably necessary…to manage system security and reliability' (NER 3.10A.3(d)(3)). AEMO agrees with the intent of these provisions. In developing the VSR Guidelines, AEMO intends to pursue an approach that seeks to maximise VSR growth and participation, within the bounds necessary to allow the secure and reliable operation of the power system.

Question 2
2. Do the proposals in this consultation paper strike the right balance between ease of participation for VSRs in central dispatch and the need to maintain a secure and reliable NEM power system?

3.4. Amendments to the VSR Guidelines and 2030 review

Stakeholders should note that NER 3.10A.3(e) states that AEMO may review and amend the VSR Guidelines from time to time. In addition, NER 11.180.3(c) requires AEMO to conduct a review of the VSR Guidelines by 23 May 2030. By that stage, around three years of VSR operational experience and data will be available for consideration, as well as more than four years of monitoring and reporting of unscheduled price responsive resources (which is not covered by the VSR Guidelines but commences on 1 January 2026 and occurs as outlined in NER 3.10C). AEMO and industry will therefore be able to make appropriate and evidence-based adjustments to VSR technical parameters and operational settings as part of the mandatory VSR Guidelines review in 2030, and at other times as appropriate.

3.5. Issues for consultation

AEMO welcomes submissions on any matter relating to the topics covered in the consultation paper or that stakeholders consider relevant to the development of the VSR Guidelines.

This section of this consultation paper has been structured to reflect the VSR lifecycle, with sections corresponding to the topics listed below. Of the 13 sections, ten flow from the relevant NER requirements, while three sections (bidding, NEMDE processes, and dispatch) AEMO proposes to include to provide additional information to prospective VSRP and other relevant parties.

The topics are ordered to correspond with the different phases of a VSR lifecycle, starting with the establishment of operational zones, to the registration process and operational requirements.

AEMO proposes to structure the VSR Guidelines in the same manner and welcomes comments in this approach.

The proposed sections of the VSR Guidelines, and the corresponding structure of the following subsections, is:

- Determining zones and loss factors
- Registration
- Portfolio management
- Capability assessment
- Deactivation and temporary hibernation
- Bidding
- NEMDE processes
- Dispatch
- Conformance
- Metering

- Settlement
- Prudential management
- Data and information sharing

Question 3

3. How appropriate is AEMO's proposed structure for the new VSR Guidelines?

3.5.1. Determining zones and loss factors

Under the IPRR rule, two or more qualifying resources can be aggregated into a VSR within what AEMO has referred to in this consultation paper as a 'VSR zone'. Here, the term VSR zone refers to the network boundaries, on the network, within which the connection points of the qualifying resources for an aggregated VSR must be contained. Whilst AEMO has used the term VSR zone in this paper, AEMO would like to hear from stakeholders if this is a useful way of differentiating VSR zones from other zones, or if another term or approach would be more appropriate.

Under the final IPRR rule (NER 3.10A.3(c)(1)), AEMO is required to specify the **methodology used to determine zones** in which VSR participate in central dispatch as well as the **loss factor** that is to apply in each zone for the purpose of clause 3.8.6(h). This section first looks at the proposed approach to determining loss factors for VSRs, and then discusses options for determining VSR zones.

Loss factors

In the NEM, transmission loss factors (TLF) are used in:

- Bidding: the loss factor adjustment is applied to bid/offer prices as part of the dispatch process, to match supply to demand at the same reference, each trading interval (TI).
- Energy settlement transactions: to calculate the connection point price applied to each transaction.

AEMO's initial view is that is the use of a loss factor is neither necessary or appropriate for VSRs because:

- VSRPs will already have made adjustments to account for energy losses from units comprising an aggregation as part of the process of understanding and delivering the levels at which they bid.
- Settlement does not occur at the VSR level, but rather for each constituent NMI (see section 3.5.11, below).

AEMO, therefore, proposes that all VSRs, independent of zone, be allocated a loss factor of one (that is, no adjustment for losses).

A further consideration is the complexity of calculating loss factors for a VSR, or its constituent NMIs, which is likely to be significant.

Zones

VSR zones are one of the most important factors for enabling participation in, implementing, and operating dispatch mode. These zones could be formed from one of the existing NEM zonal classifications (see Table 1) or from a new approach.

Table 1: Existing NEM zonal classifications and their features

Type of zone	Number of zones	Features
NEM regions	5	Used in NEM Dispatch Engine (NEMDE) for central dispatch
Load Forecasting Areas	8	Used in the development of pre-dispatch and short term load forecasts Used in the implementation of the Wholesale Demand Response (WDR) mechanism
ISP sub-regions	12	Used to improve the granularity of optimisations previously assessed across the five NEM regions
Distribution network areas	13	Areas serviced by Distribution Network Service Providers (DNSPs) to supply electricity to end-users
Congestion modelling zones	17	Used to perform congestion modelling and analysis
Renewable Energy Zones (REZs)	43	Used to cluster large-scale renewable energy projects and supporting network infrastructure

AEMO is seeking stakeholder input on the key factors to consider when setting VSR zones. These could include:

- **Size and ease of participation** – the larger the zones are, generally the more NMIs it will contain. Larger zones are, therefore, more likely to support the development and growth of VSRs.
- **System security** – zones must be set in a way that supports AEMO's effective management of the power system.
- **Load forecasting** – zones must be set in a way that allows VSRs to be effectively integrated into the load forecasting process.
- **Balance VSR risk to system security over time** - it is likely that VSRs will initially be small meaning they are unlikely to have a material impact on power system security in the short term. Therefore leniency on zoning likely comes at a lower risk in the early years of dispatch mode operations.
- **Stability** – change to VSR zones will be potentially highly disruptive to VSR operations and development, and therefore should be minimised.
- **Support future dynamic operating envelope (DOE)** integration with Distribution Network Service Providers (DNSPs).
- Be consistent with future backstop arrangements and related activities.

Suitability of NEM regions as basis of VSR zones

NEM regions are the largest zones that could theoretically be used as VSR zones because VSRs will be settled at the spot price which is determined for each NEM region. However, the use of NEM regions as VSR zones in the medium to long term may not support AEMO's effective modelling and management of congestion in the NEM, which is essential to maintaining power system security. AEMO is interested to hear stakeholders' views on the potential use of NEM regions as VSR zones in the early years of dispatch mode, when VSRs are expected to be small, with a transition to VSR zones that better support system security as VSRs grow.

Suitability of congestion modelling zones with amalgamations where possible to form VSR zones

Based on the initial list of factors considered above, AEMO's early view proposed here for stakeholder consultation, is that it would be appropriate to base VSR zones on the existing congestion modelling zones.

AEMO currently considers that using congestion modelling zones will best support managing power system needs (security, reliability, congestion and stability) whilst using the largest zones possible. To manage the risk of these congestion modelling zones being too small to form viable VSRs, AEMO has also sought to identify where a VSR zone could be formed by amalgamating two or more congestion modelling zones. For example, Tasmania could be combined into one single VSR zone instead of the four congestion modelling zones. Note that changes to congestion zones are not common, with the last change occurring over 10 years ago.

Table 2 provides stakeholders with a view of the 13 proposed VSR zones based on congestion modelling zones. Table 2 also provides an estimate of number of NMIs in each of these zones, to provide an understanding of their capacity for VSR aggregation. Please note that these figures must be treated as indicative estimates only, extrapolated from the number of NMIs attached to 70-80% of the substations in each zone. This is the most accurate AEMO is able to be without undertaking an extensive manual data matching and compilation process. As Table 2 shows, the estimated number of NMIs in each zone varies significantly and are primarily the result of the transmission network characteristics in each region.

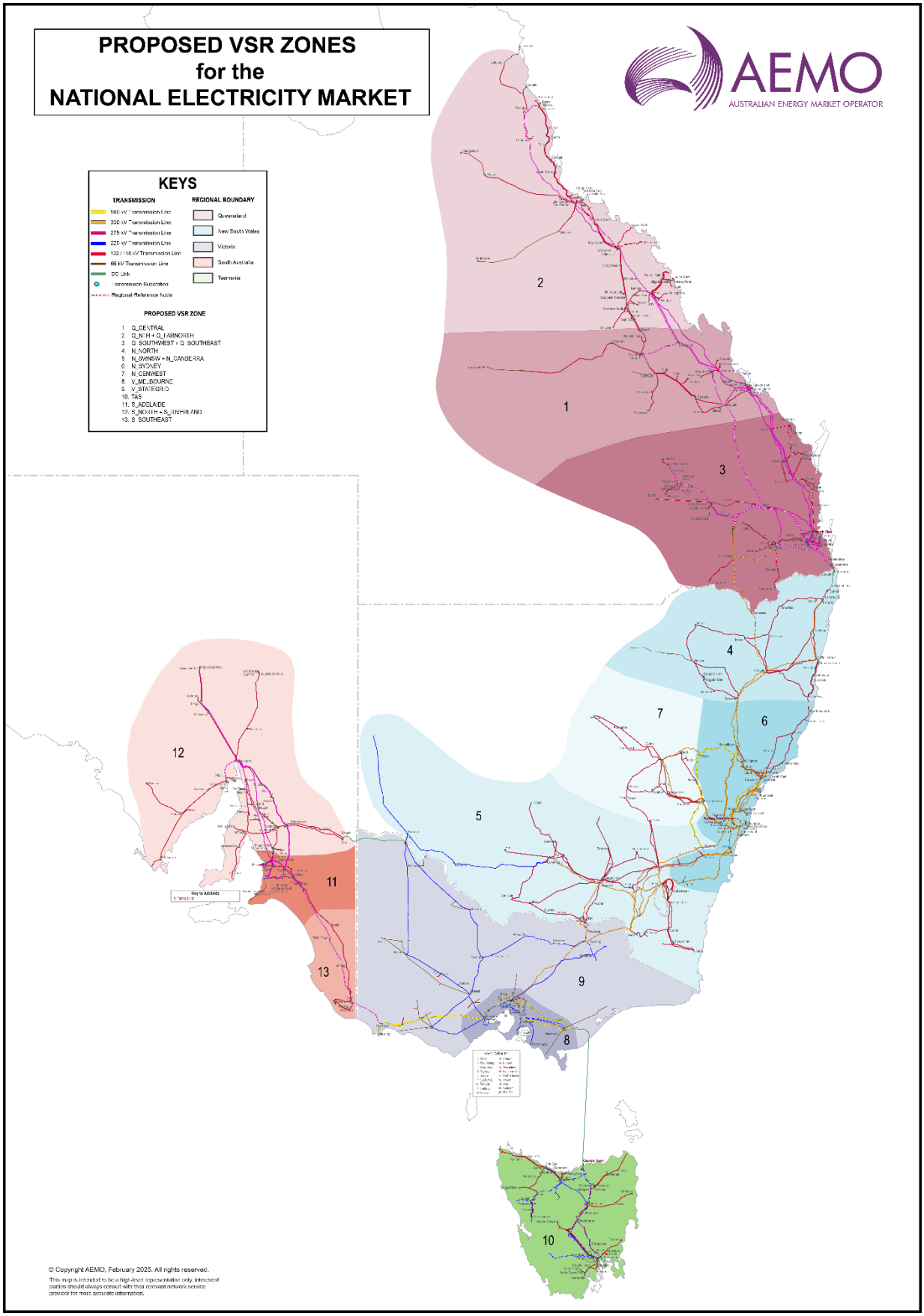
Table 2: Proposed VSR zones and constituent congestion modelling zones

	Proposed VSR zone	Constituent congestion modelling zones	Estimate number of NMIs in zone
Queensland			
1	Q_CENTRAL	CENTRAL_QUEENSLAND_EXCIND	170,000
2	Q_NTH + Q_FARNORTH	NORTHERN_QUEENSLAND_EXCFNQ FAR_NORTHERN_QUEENSLAND	470,000

3	Q_SOUTHWEST + Q_SOUTHEAST	SOUTH_WESTERN_QUEENSLAND SOUTH_EASTERN_QUEENSLAND	2,040,000
New South Wales (NSW) and Australian Capital Territory (ACT)			
4	N_NORTH	NORTHERN_NSW	460,000
5	N_SWNSW + N_CANBERRA	South West NSW CANBERRA_NSW	320,000
6	N_SYDNEY	SYDNEY_NSW	3,650,000
7	N_CENWEST	CENTRAL_WESTERN_NSW	230,000
Victoria			
8	V_MELBOURNE	MELBOURNE_VIC	2,580,000
9	V_STATEGRID	220kV network outside Mel (Stategrid)	710,000
Tasmania			
10	TAS	TAS REGION NORTHERN_TASMANIA_EXCWT NORTH_WESTERN_TASMANIA WESTCOAST_TASMANIA	210,000
South Australia (SA)			
11	S_ADELAIDE	ADELAIDE_SA	1,360,000
12	S_NORTH + S_RIVERLAND	NORTHERN_SA RIVERLAND_SA	2,000
13	S_SOUTHEAST	SOUTH_EASTERN_SA	500

Figure 1 illustrates the estimated boundaries and geographic size associated with the 13 proposed VSR zones described in Table 2. The VSR zones illustrated in Figure 1 have been mapped according to the relevant substations within each zone as a general guide for stakeholders. Boundaries in relation to transmission lines between substations have been approximated.

Figure 1: Proposed VSR zones for the NEM map



The congestion modelling zones also enable alignment to AEMO's load forecasting zones, and therefore the use of the congestion modelling zones will allow AEMO to effectively integrate VSRs into its key forecasts. In the initial assessment, congestion modelling zones are considered preferable to load forecasting areas because they better support AEMO to manage system congestion for the purposes of system security. Note that this approach is inconsistent with Wholesale Demand Response (WDR) where aggregation of Wholesale Demand Response Units (WDRUs) must be contained within a single load forecasting area boundary. AEMO is seeking feedback from stakeholders on any existing or potential issues with having an inconsistent approach to zonal classifications between VSRs and WDRUs.

Suitability of other NEM zonal classifications as basis for VSR zones

The use of **distribution network areas** or **ISP sub-regions** for VSR zones would not support AEMO's effective modelling and management of congestion in the NEM. AEMO notes that the size and ease of participation would likely be affected by the smaller size of some distribution networks, particularly in Victoria. **REZs** were also not considered appropriate for this reason, and because of their inability to support load forecasting, the large number of REZs (43), and their insufficient geographic coverage of the NEM.

AEMO welcomes stakeholder feedback on its early findings, and any other proposal for determining VSR zones.

Requirements and conditions for aggregating in a VSR zone

Section 3.5.2 describes AEMO's proposed requirements and conditions for approving nominations for the aggregation of qualifying resources into a VSR, including the final rule requirement that all qualifying resources that form part of an aggregated VSR must be within the same zone. Section 3.5.2 also provides guidance for VSRPs on the processes AEMO would like to consult on for forming VSR aggregations into the above proposed VSR zones (NER 3.10A.3(c)(3)).

Processes for validating VSR zone compliance

Before approving an application for a VSR, AEMO will validate that all qualifying resources are located within the same zone to meet the final rule requirement (NER 3.10A.3(c)(4)). AEMO proposes it will perform this validation when qualifying resources are nominated into a VSR (see section 3.5.2) using the VSR zones indicated in Figure 1: Proposed VSR zones for the NEM map above, and the corresponding data on the substations contained within each proposed VSR zone.

Review of VSR zones

AEMO must not for the first three years (prior to 23 May 2030), implement any change to a zone in which VSR are able to participate in central dispatch (clause 11.180.5). Following these three years, review of the zones will be considered in AEMO's review of the VSR Guidelines, which is to occur by 23 May 2030 (clause 11.180.3(c)). After this three year

period, AEMO will have access to more than four years of monitoring and reporting data on price-responsive resources and more than two years of VSR operational data to consider, which will help AEMO and stakeholders determine if the initial VSR zone settings are appropriate for achieving the right balance between ease and cost of participation and managing power system security and reliability. As part of the review, stakeholders will have the opportunity to propose alternative zone structures for VSR operation. Any changes to the VSR Guidelines, including changes to VSR zones, would occur through a formal consultation process.

After 1 May 2030, any review of VSR Zones in the VSR Guidelines would follow the Rules consultation procedures.

AEMO notes that a future change to VSR zones after their initial selection could result in either an increase or decrease in the number of VSR zones. This would be based on the size and characteristics of participation in dispatch mode and the settings AEMO and the industry may need to review and adjust to ensure dispatch mode continued to strike the right balance between facilitating ease of participation and maintaining power system security and reliability.

If AEMO is considering changing one or more VSR zones, then it must provide guidance for VSRPs on the processes and timing for implementing these changes, including the minimum lead time before they would take effect (NER 3.10A.3(c)(5)). AEMO proposes a minimum lead time of six months before any changes to zones would take effect. This minimum lead time considers the notice that will be required by VSRPs to align with the timing associated with entering into contracts with participants.

Questions 4-11

4. **To what extent do you agree with all VSRs, independent of zone, being allocated a loss factor of one?**
5. **Other than the NEM zonal classifications presented, what other zonal classifications could be appropriate to use as the basis of VSR zones? What are these and why would they be suitable?**
6. **What are the the key factors to consider when setting VSR zones now and in the future as the industry gains more experience with and information on dispatch mode?**
7. **How should VSR zones be set to balance cost and ease of participation for VSR with AEMO's need to manage power system security and reliability?**
    a. **What are your views on the potential use of NEM regions as VSR zones in the early years of dispatch mode when VSRs are expected to be small with a transition to VSR zones that better support system security as VSRs grow? In this scenario, what would the transition impacts be?**
    b. **What are the existing or potential issues with having an inconsistent approach to zonal classifications between VSRs and WDRUs?**

Questions 4-11

c. What impact/s do DNSPs see from the proposal to use congestion zones as the basis for VSR zones rather than distribution network boundaries?

8. Does the selection of VSR zones impact your existing VPP portfolio?

9. Do you currently have a VPP portfolio that operates across the NEM regions and/or distribution networks?

10. To what extent do you agree with the requirements, conditions and processes for VSRPs forming VSR aggregations within the proposed VSR zones?

11. Do you agree with AEMO's minimum lead time of six months for a change in zones?

3.5.2. Nomination

Table 3 below summarises the different proponent types associated with IPRR and their requirements under the final rule as well as under settings that AEMO is proposing and consulting on in this paper. For VSRPs, no new unique participant registration category will be created, and AEMO proposes that market participant registration will occur through AEMO's existing registration form for new market participants on AEMO's website.

Table 3: Description of the different IPRR proponents and their requirements under the final rule and proposed AEMO settings for consultation

Proponent	NER	Description	Requirements
VSRP	Clause 3.10A.1 3.10A.3(b)(6)(i)	• A person whose qualifying resource/s have been approved for nomination as a VSR • Market participant for a VSR • May participate in the VSR incentive mechanism	• Must be registered as a Generator, Market Customer or IRP • Responsible for ensuring the qualifying resources within each VSR comply with their individual distribution connection agreements
Qualifying resource/s	3.10A.3(b)(1) 3.10A.3(b)(4) 3.10A.3(b)(5)(v) Clause 3.10A.1	Individual NMI or NMIs at a market connection point Examples include: • non-scheduled generating units • non-scheduled bidirectional units (BDU) • non-scheduled loads at a market connection point, and • small resource connection points classified as a market connection point, such as	• Meet the qualifying resource capabilities in section 3.5.4, including acceptable metering installation types

Proponent	NER	Description	Requirements
		exempt small BDUs or small generating units (GU)	
VSR	3.10A.3(b)(1) 3.10A.3(b)(2) 3.10A.3(b)(5) Clause 3.10A.1	Aggregation of one or more qualifying resources into a single DUID within the same zone	• Be in the same zone • Meet the operational requirements for telemetry and communications in section 3.5.4 • Minimum nameplate or combined nameplate rating of 5 MW • Can only be scheduled and dispatched via the relevant VSRP and not across multiple aggregated service providers • Poses no threat to maintaining power system security
FRMP	3.10A.3(b)(3) Clause 3.10A.1	In respect of the market connection point/s (of the qualifying resources) nominated in a VSR	• Must be the VSRP

Minimum threshold for nameplate rating, or combined nameplate rating, of a VSR

The minimum size for a VSR is a key parameter for dispatch mode participation. The smaller the minimum threshold for the VSR nameplate rating, the easier it is to form a VSR and participate in dispatch mode.

The term nameplate rating is set in the NER, and means the maximum continuous output or consumption in MW of an item of equipment as specified by the manufacturer, or as subsequently modified. In relation to qualifying resources and VSR, nameplate and combined nameplate rating will be treated the same as for bidirectional units, whereby the nameplate and combined nameplate rating is measured separately for output and consumption.

AEMO is seeking stakeholder input on the key factors to consider when setting a minimum VSR threshold. These could include:

- The minimum bid size is set at the current NEM system minimum of 1 MW for bidding. AEMO acknowledges that a 1 MW nameplate rating may pose a barrier to the participation of small aggregators. AEMO is seeking feedback on options to enable and encourage the participation of smaller aggregations in dispatch mode through the technical details established in the VSR Guidelines, such as the conformance requirements for small aggregations.
- Consistency with:

- WDRUs where the "maximum responsive component" needs to be a minimum of 1 MW, aligned with 1 MW bid threshold
- Small resource units (SRUs) providing contingency FCAS need to be a minimum capacity of 1 MW, also aligned wth the 1 MW bid threshold.

- AEMO's preference for a minimum threshold for VSR nameplate or combined nameplate rating is to be 5 MW. This is to manage the challenges associated with handling a larger number of smaller VSRs by AEMO's control room, and its alignment with the existing standing exemption from registration of 5 MW.

AEMO welcomes stakeholder views on the minimum threshold for VSR nameplate rating. This includes whether the threshold could initially be set lower and then increase as the total volume and capability of VSRs increases.

Application process to nominate a voluntarily scheduled resource

AEMO proposes that VSRPs will submit applications to nominate a qualifying resource, or aggregation of qualifying resources, as a VSR using AEMO's Portfolio Management System (PMS). To improve this process however, AEMO proposes to add an API to allow applications to be made through a system-to-system interaction, rather than requiring a manual upload of CSV files as is currently required. AEMO notes this is a different application process to that for a Small Resource Aggregator (SRA), which are done via a form that can be downloaded from AEMO's website.

Applications are required by the final rule to include:

- NMI and market connection point associated with each qualifying resource.
- Demonstration of how the qualifying resource or qualifying resources meet the requirements summarised in Table 3 above.

AEMO must, within 5 business days of receiving a nomination application for a VSR advise the applicant of any further information or clarification which is required in support of its application.

If the further information or clarification requested is not provided to AEMO's satisfaction within 15 business days of the request, then the VSRP will be deemed to have withdrawn the application.

AEMO will approve applications for nomination of one or more qualifying resources as a VSR if it is reasonably satisfied that it meets the final rule and proposed requirements in Table 3.

Following the initial nomination process for a VSR, AEMO proposes that a VSRP will be able to manage their VSR portfolio, including the removal or addition of NMIs in the VSR, more efficiently through the process outlined in section 3.5.3.

Effect of approval for nomination as a voluntarily scheduled resource

Once a nomination application for a VSR is approved by AEMO, the VSR will become a scheduled resource, except for when inactive or hibernated as described in more detail in section 3.5.5.

After approval, a VSRP will be responsible under the final rule for notifying AEMO:

- Immediately if they cease to be the FRMP for a qualifying resource forming part of their VSR.
  - AEMO notes that it may also notify VSRP when it becomes aware via AEMO's retail systems that the VSRP is no longer the FRMP for a qualifying resource forming part of its VSR.
- As soon as practicable, and in any event, no later than 10 business days after becoming aware that a resource forming part of a VSR ceases to be a qualifying resource.

If a VSRP gives AEMO a notice under the above in respect of a qualifying resource in a VSR, under the final rule, that qualifying resource ceases to be a VSR from the time the relevant notice is given.

Questions 12-16

12. What other factors should be considered in setting the minimum VSR nameplate rating threshold and why?

13. What are your views on an initial lower VSR nameplate rating threshold that adapts as dispatch mode capability and capacity grows?

14. What are the options for aggregations of >1 MW to participate in dispatch mode, given the 1 MW bidding threshold?

15. Do you have any feedback you would like to provide on the nomination process for a VSR?

16. What issues do you see with AEMO's requirements for qualifying resources within a VSR or for a VSR?

3.5.3. Portfolio management

AEMO proposes (under NER 3.10A.3(b)(2)) that it may request VSRPs that have aggregated qualifying resources to declare individual qualifying resource availability and operating status to AEMO under the following circumstances:

- AEMO determines that it may need to represent the VSR within the aggregation as two or more dispatchable units in constraints used in central dispatch to maintain power system security.
- AEMO detects non-conformance with the dispatch conformance criteria for a VSR aggregation (as outlined in section 3.5.9).

Applications to add or remove NMIs from a VSR aggregation

AEMO proposes that a VSRP may apply to add or remove a NMI from its VSR by submitting the relevant application form within PMS, or potentially applications may be submitted via APIs dependent on the final system/processes that AEMO establishes. The form will require the VSRP to nominate a future trading day from which it wishes the nominated NMI to apply or to not apply to the aggregation.

Upon receiving an application from a VSRP, AEMO will review the application and advise the VSRP:

- of any further information or clarification which is required in support of its application, in AEMO's reasonable opinion; or
- that AEMO considers the application to be complete.

If AEMO requests a VSRP to provide further information or clarification, AEMO considers that the VSRP should provide this information as soon as practicable. Upon receipt of the further information or clarification, AEMO will repeat its review of the application.

The PMS guides will detail how AEMO will manage in its systems the adding or removal of NMIs (NMI churn) for VSR aggregations. The PMS guides will also outline the processes for ongoing management of NMIs within a VSR DUID for VSRPs.

AEMO understands that there will be instances where a VSR may, as a result of the removal of one or more NMIs, fall below the minimum threshold for nameplate or combined nameplate rating of a VSR (to be set using the consultation outlined in section 3.5.2). AEMO would like to consult with stakeholders on what processes it should establish around such circumstances. For example, an option could be that, if a VSR drops below the minimum threshold, the VSR is automatically switched to inactive mode by AEMO.

Questions 17-18

17. **Do you see any issues with AEMO's circumstances where it may request VSRPs that have aggregated qualifying resources to declare individual qualifying resource availability and operating status? What other factors should be considered?**
18. **What are your views on the processes and settings AEMO should establish to deal with cases of NMI churn that result in a VSR dropping below the minimum threshold?**

3.5.4. Capability assessment

Initial capability assessment

AEMO is required to provide a framework for testing the capabilities of qualifying resources prior to their request for nomination as a VSR (NER 3.10A.3(b)(4)). To develop this framework, AEMO would like to hear from stakeholders to help ensure it is striking the right balance

between costs and ease of participation for VSRPs with managing power system security and reliability. This includes what information or tests would be reasonable for AEMO to require in the initial capability assessment framework. This is particularly in the context of the services a VSRP is looking to provide. For example, AEMO is seeking feedback on whether there will need to be different requirements for a VSR wishing to participate in energy dispatch only, compared to a VSR seeking to participate in energy dispatch and regulation and/or contingency FCAS. For stakeholders' consideration and comment, Table 4 lists the potential information and test requirements at the initial nomination stage for assessing the capability of a qualifying resource, a VSR and a VSRP.

AEMO has also considered whether the VSR initial capability assessment should occur only during an initial nomination of qualifying resources into a VSR, or also when qualifying resources are added to a VSR portfolio during its operation. AEMO proposes that the initial capability assessment will only apply to the initial nomination of qualifying resources into a VSR, and that the ongoing capability of VSR portfolio throughout the removal and addition of qualifying resources will be done in period capability assessments, outlined below.

Table 4: For consultation: Potential information and test requirements for qualifying resources, VSRs and VSRPs

	Per NMI (qualifying resource)	Per DUID (VSR)	Per VSRP
Information to be collected	• Nameplate rating (for output and consumption) • Technology type (for example, EV charger, battery, or hot water system) • Technology equipment (manufacturer, model) • If relevant, control equipment (such as circuit breakers/reclosers) • If relevant, communications equipment (for sharing telemetry data with head end) • Connection type	• Combined nameplate rating (for output and consumption) • Capability declaration	• Operational contacts, to ensure 24/7 communication capability between AEMO operations and the DUID
Tests to occur		• Check that DUID meets aggregation and classification requirements • If relevant, FCAS assessment • Aggregated telemetry test • Check that metering installation type meets requirements	

Per NMI (qualifying resource)	Per DUID (VSR)	Per VSRP
	• Ramp test (to test VSR can meet requirements of AEMO's Dispatch procedure under Section 2.8 Ramp rates in energy dispatch instructions) • Systems Readiness assessment, where AEMO seeks evidence that a DUID can use AEMO's preproduction systems once a DUID has been configured to do so • MMS Pre-Production implementation	

After a VSR nomination has been approved by AEMO, passing the initial capability assessment, AEMO proposes to perform periodic capability assessments to validate:

- That a VSR is meeting its operational requirements, including those for a scheduled resource (for active and inactive VSR, and under the mode modifications outlined in Table 6).
- The telemetry and communications provided by VSRP. This will include verification of aggregated telemetry data received by AEMO from VSRPs against settlement metering data for each NMI in a VSR DUID.

AEMO proposes that it would perform the above capability assessments in cases where AEMO notices repeated non-conformance from a VSR, or if AEMO notices there may be a discrepancy between the aggregated telemetry data it is receiving from a VSR and its settlement metering data. AEMO would like to consult on these and other triggers or a periodic frequency that may be appropriate for performing periodic capability assessments of a VSR.

Operational requirements for telemetry and communications equipment

NER3.10A.3(b)(5)(ii) requires AEMO to provide information about the requirements for telemetry and communications equipment as part of the operational requirements for a VSR.

Unlike WDRUs, all VSRs under the final rule will be required to have the capability to and must provide telemetry data to AEMO for the purposes of performing dispatch conformance monitoring. A VSR will only be exempt from submitting aggregated telemetry data when it is in hibernation mode.

Telemetry and communications requirements are proposed to include:

- VSRPs must provide aggregated telemetry data for VSRs to AEMO in accordance with the 'Power System Data Communications Standard.' This aggregated telemetry data is expected in the form of SCADA provided via the NSP or through a direct SCADA-Lite connection (available from June 2025).
- Provision of less than or equal to 60 seconds sampling on a time basis of telemetry data (generation amount and load amount), for the purposes of 5-minute dispatch. This proposed frequency of telemetry has been made by AEMO to align the requirements for the frequency of telemetry data for a VSR with that of a WDRU, as outlined in Table 5 (where the data in Table 5 is Dispatch Data for the purposes of the Power System Data Communications Standard). In doing so, AEMO is seeking to balance the costs and facilitate the ease of participation for VSR by providing VSR with a more lenient, and less costly frequency of telemetry data requirement.
- For VSR aggregations above the following thresholds however, or where VSR wish to participate in Regulation FCAS (under the MASS), aggregated telemetry data is proposed to be required on a time sampling basis of less than or equal to 4 seconds:
  - VSR with a combined nameplate rating above 30 MW.
  - Qualifying resources located in an area of the power system where existing scheduled plant:
    i. needs to be curtailed to maintain power system security; or
    ii. is forecast to be curtailed as a result of committed investments and works, or other changes in the power system,

    for at least five hours per year.
- VSRPs are formulating and submitting dispatch bids under the requirements outlined in section 3.5.6, including the use of NEM MMS bidding systems and the MMS portal.
- 24-hour, seven days a week operational response capability when in active mode, whereby the VSRP is capable of receiving and actioning verbal dispatch instructions from AEMO immediately.
  - The means of which the VSRP follows AEMO's electronic or verbal dispatch instructions across the VSRs will be at the discretion of the VSRP. Actioning of electronic or verbal dispatch instructions will therefore be assessed at the DUID-level.
- Where and if applicable, changes in circumstances in respect of VSRs that could affect AEMO's management of power system security, including amendments to plant, are communicated to AEMO by the VSRP for AEMO's awareness and management, including meeting the requirements of NER 4.8.1.

Table 5: Proposed telemetry data requirements for VSR

	VSRs below thresholds	VSRs above thresholds
Definition	• Aggregate net active power flow at NMI connection points in VSR DUID • No adjustment for distribution or transmission losses	
Dimensional units	MW	MW

Minimum/maximum resolution	• Minimum: 0.001 MW • Maximum: 0.1 MW	• Minimum: 0.001 MW • Maximum: 0.1 MW
Processing	Instantaneous	Instantaneous
Quality flag	Mandatory provision • Set to bad quality if the sum of all NMI VSR associated with NMI VSR meters that have failed or report bad quality measurements exceeds 25% of the DUID-Level nameplate or combined nameplate rating (for output and consumption)	Mandatory provision Set to bad quality if the sum of all NMI VSR associated with NMI VSR meters that have failed or report bad quality measurements exceeds 25% of the DUID-Level nameplate or combined nameplate rating (for output and consumption)
Validations	Must be a number Range: 0 to DUID-Level nameplate or combined nameplate rating (for output and consumption) + 20%	Must be a number Range: 0 to DUID-Level nameplate or combined nameplate rating (for output and consumption) + 20%
Minimum update frequency	60 seconds	4 seconds

Questions 19-21

19. Are there any other matters AEMO should consider in relation to the proposed telemetry requirements?

20. To what extent does the proposed approach to telemetry appropriately balance between minimising barriers to VSR development and system security considerations?

21. To what extent do you agree with AEMO's proposed approach to the:

a. Initial capability assessment?

b. Periodic capability assessments, including any views you have on the triggers and frequency of such assessments?

c. Operational requirements for telemetry and communications equipment for VSR?

3.5.5. Deactivation and temporary hibernation

AEMO is required to specify in the Guidelines matters required by clause 3.10A.2 regarding the deactivation and temporary hibernation of VSRs (NER3.10A.3(b)(7)). The final rule has set no minimum or maximum period for the deactivation period of a VSR, and a hibernation period of at least 30 days and a maximum period of 18 months.

Under the final rule, the person whose VSR is approved as an inactive or hibernated VSR remains the VSRP of that VSR. Regardless of mode, the VSRP also retains its underlying registration as a Generator, Integrated Resource Provider or Market Customer, and as a result the VSRP must continue to comply with the obligations that apply to a Generator, Integrated Resource Provider or Market Customer in respect of the relevant qualifying resource. As outlined in Table 6 below, however, the obligations of the VSRP that apply in respect of that

VSR when it is either inactive or hibernated are reduced. Notably, unlike active and inactive VSRs, a hibernated VSR is not considered to be a scheduled resource and therefore none of the requirements applying to scheduled resources will apply to a VSRP in respect of the hibernated VSR.

Table 6: Modifications that apply to a VSR while it is inactive or hibernated

Feature	NER clause	Active	Inactive	Hibernated
Submit dispatch bids	3.8.6	✓	✓	✗
Subject to dispatch bid validation	3.8.8	✓	✗ (Not required in the final rule but AEMO proposes to still perform validation)	✗
Conform to dispatch instructions	3.8.23B	✓	✗	✗
Bids and rebids must not be false or misleading	3.8.22A	✓	✗ (AEMO expects however that inactive bids are as representative as possible of intended VSR behaviour)	✗
Receive and follow a direction issued by AEMO	4.8.9	✓	✗	✗
Receive and follow instructions from AEMO at any time	4.9.2	✓	✗	✗
Dispatch bid compliance	4.9.8	✓	✗	✗

As part of implementing the final rule, AEMO proposes it will incorporate new capabilities within its PMS to allow for VSRs to switch between deactivation and hibernation modes. AEMO would like to consult on whether stakeholders identify a need for intra-day mode switching, that is allowing VSR to nominate the trading intervals within a day that it would like to be in

particular VSR modes. AEMO has proposed in this paper that mode switching be per day, that is VSR can only nominate to switch between different VSR modes at a minimum time scale of one trading day. In consulting on mode switching, AEMO suggests that if stakeholders were to highlight a need for intra-day switching, that a minimum active period be set. AEMO proposes that this would be at least a two-hour minimum active period.

Notice periods

AEMO proposes and would like to consult on the notice periods in Table 7 below**.** Proposed notice periods for switching between participation modes, as well as for the withdrawal of a nomination of VSR (cessation), will apply to each individual qualifying resource forming part of the aggregated VSR.

Table 7: Proposed notice periods for switching between participation modes

Notice period for	Notice type/s	To be received/sent by	Reasoning
Deactivation notice by VRSP	Notice for the deactivation of an active VSR	Seven days prior to start of deactivation period	Aligns with the requirements of ST PASA in the final rule Provides sufficient time for AEMO to make the necessary pre-dispatch updates Supports proper management of Minimum System Load (MSL) risks and operational impacts across the network
Reactivation notice by VRSP	Optional notice for the reactivation of an inactive VSR before the end of original deactivation period	No minimum notice period Must be submitted before the intended reactivation date that applies to the original deactivation notice by the VSRP	No minimum or maximum period for which a VSR may remain inactive, so long as it continues to comply with the obligations for inactive VSRs under the Rules
Hibernation notice by VSRP	Notice for the temporary hibernation of an active VSR Notice for the temporary hibernation of an inactive VSR	Seven days prior to start of hibernation period	Allows AEMO to accommodate necessary manual processing requirements and system adjustments, including portfolio maintenance procedures
Resumption reminder/ notification from AEMO to VRSP	Reminder/notification to notify VSRP that a hibernated VSR is	Seven days prior to end date of relevant hibernation period	Notice period to allow VSRPs to prepare for recommencement as a scheduled resource

Notice period for	Notice type/s	To be received/sent by	Reasoning
	reaching the end of its hibernation period	Seven days prior to end date of maximum hibernation period (if applicable)	Allow VSR to provide early bid information in the extended, seven day ahead pre-dispatch and ST PASA
Resumption notice by VRSP	Notice for the resumption of a hibernated VSR as an active VSR Notice for the resumption of a hibernated VSR as an inactive VSR	May be sent any time during the relevant hibernation period Must be submitted seven days prior to end of relevant hibernation period	Allows AEMO to complete the necessary manual intervention and capability reassessment to assert that the VSR portfolio still meets the necessary technical and communication requirements of a VSR Aligns with the week-ahead ST PASA in the final rule
Cessation notice by VSRP	Notice by a VSRP to withdraw the nomination of a hibernated VSR (and cease to be a VSRP)	May be submitted any time during the relevant hibernation period Seven days prior to cessation date	Allows AEMO to complete the necessary system changes, including to remove the nomination of each qualifying resource within a VSR

Under the final rule, an inactive VSR will continue to have that status until either:

- The VSRP submits a reactivation notice, in which case the VSR from the date specified will become an active VSR.
- The VSRP submits a hibernation notice, in which case the VSR from the date specified will become a hibernated VSR.
- The VSRP submits a deactivation notice to extend the deactivation period of the VSR, in which case the VSR will remain inactive.
- The deactivation period ends, according to the date specified in the deactivation notice by the VSRP, and the VSR returns to active mode.

The hibernated VSR will continue to be hibernated until either:

- The VSRP submits a resumption notice to remove its status as hibernated and become an active VSR, in which case the VSR will become a scheduled resource again from the date specified.
- The VSRP submits a resumption notice to remove its status as hibernated and become an inactive VSR, in which case the VSR will become a scheduled resource again from the date specified.

- The VSRP submits a cessation notice to withdraw the nomination of a hibernated VSR (and with it their status as a VSRP).
- The maximum hibernation period ends, in which case the qualifying resources cease to be a VSR and will only be subject to the obligations applying due to its existing classification as a generating unit, bidirectional unit or market connection point, and the VSRP ceases to be a VSRP and retains only its original registration as a Generator, Market Customer or IRP.

Notice information

AEMO proposes requiring the information outlined in Table 8. In the case of emergency situations, VSRP must comply with NER 4.8.1 regarding the requirement to prompty advise AEMO at the time that the VSRP becomes aware of any circumstance which could be expected to adversely affect the secure operation of the power system or any equipment owned or under the control of the VSRP or a Network Service Provider. As such, the proposed notice periods and notice information requirements for VSR participation mode switching outlined in Table 7 and Table 8 are not proposed to apply during emergencies (as these would fall under NER 4.8.1).

Table 8 to be included in notices for switching between participation modes. Under NER 3.10A.2(k), AEMO may request further information or reject a notice from a VSRP if it does not provide the required information in Table 8, comply with the notice periods in Table 7 or, in the case of hibernation, if the VSRP specifies an expected hibernation period that exceeds the maximum period. AEMO therefore would like to test with stakeholders that it has appropriately facilitated the ease of participation with requirements to manage power system security and reliability in setting these notice periods and information requirements.

AEMO proposes using the PASA framework for setting detailed reason codes that VSRP will select to explain their reason for a deactivation or hibernation notice. These codes will include:

F – Financial/Commercial

P – Planned Outage

U – Unplanned Outage

H – Forced Hibernation

O – Other

In the case of emergency situations, VSRP must comply with NER 4.8.1 regarding the requirement to prompty advise AEMO at the time that the VSRP becomes aware of any circumstance which could be expected to adversely affect the secure operation of the power system or any equipment owned or under the control of the VSRP or a Network Service Provider. As such, the proposed notice periods and notice information requirements for VSR participation mode switching outlined in Table 7 and Table 8 are not proposed to apply during emergencies (as these would fall under NER 4.8.1).

Table 8: Proposed information requirements for notices to switch between VSR participation modes

NOTICE	MINIMUM INFORMATION
Deactivation notice by VRSP	DUID Participant ID Reason code for deactivation Start and end date for deactivation period
Reactivation notice by VRSP	DUID Participant ID Capability reassessment (for VSR that have been inactive for 12 months or longer) End date for relevant deactivation period
Hibernation notice by VSRP	DUID Participant ID Reason code for hibernation Start and end date for hibernation
Resumption notice by VRSP	DUID VSR mode for resumption mode (active or inactive) Participant ID Capability reassessment End date for relevant hibernation period

AEMO proposes that a capability reassessment will be required for VSR submitting resumption notices and for VSR submitting reactivation notices where the VSR has been inactive for a period of 12 months or longer. In the case of reactivation, this capability reassessment will include ensuring that the VSR still meets some of the main components of the operational requirements in section 3.5.4 that AEMO may not have validation of from the VSRs' participation in central dispatch as an inactive VSR. In the case of resumption, the capability reassessment will ensure the VSR still meets the operational requirements outlined in section 3.5.4, including having the necessary telemetry and communications equipment. This capability reassessment is not proposed however to include the complete capability assessment that will occur at the point of nomination of a VSR.

Under NER 3.10A.2(h) and (n)(2), depending on the outcomes of the capability reassessment, AEMO may request for further information or rectification to ensure the VSR meets operational requirements, which AEMO proposes may result in the need for the VSRP to adjust the date for the change in participation mode contained within the original resumption or reactivation request to meet the proposed notice periods required by AEMO in Table 7.

Questions 22-24

22. Do you agree with AEMO's notice periods for switching between VSR participation modes?

a. Are you able to provide examples of how the proposed notice periods may impact your participation in IPRR?

b. Are there any other considerations AEMO should include in setting its notice periods and information requirements?

Questions 22-24

23. Do you agree that VSR can only switch between modes on a per day basis, rather than per time intervals within the day?

24. Do you agree with the notice information requirements that AEMO proposes?

3.5.6. Bidding

Bid submission format

Under the final rule, a VSRP must submit bids in respect of its active and inactive VSR for each trading day. A VSRP will be able to submit bids for energy and FCAS for their VSR using existing bidding channels and processes.

AEMO proposes that VSRs will use the same five-minute Bid format as a scheduled BDU. The BDU classification enables storage units, or units with generation and load capacity, to submit a single bid and to receive a single dispatch instruction (compared with the previous state where storage participated as two units – generation and load).

Bidding for inactive or hibernated VSRs

Under NER 3.10A.2(e)(2), AEMO must specify for the purposes of central dispatch how an inactive VSR is to be treated by AEMO.

AEMO will require bids when a VSR is inactive, with AEMO proposing that it expects that:

- Energy bids are non-zero and reflect expected MW production/consumption at different price bands (to the extent feasible). This will be used to maintain operational visibility for AEMO.
- FCAS bids are zero to prevent inactive VSR from being enabled. Non-zero FCAS bids received from an inactive VSR will be rejected by AEMO.

Energy bids for inactive VSR will be used in dispatch by AEMO but will not be subject to dispatch conformance monitoring as they would be in active mode.

Hibernated VSR will not be required to submit bids whilst they are hibernated, as they will not be able to participate in central dispatch.

Bid validation

Under NER 3.10A.2(e)(1), for the purposes of central dispatch AEMO is not required to include dispatch bids submitted in respect of an inactive voluntarily scheduled resource in central dispatch or validate those dispatch bids in accordance with clause 3.8.8. AEMO however proposes that it will apply the same bid validation for both active and inactive VSR.

NER schedule 3.1, which refers to the standard data requirements for verification and compilation of dispatch bids, will be applicable to active and inactive VSRs.

Bid price validations for a VSR will be undertaken as specified in the Bidirectional unit price band bid validation factsheet.

Question 25

25. Do you have any suggestions on AEMO's plans to incorporate VSR bidding into its existing BDU bidding processes, or any other comments on AEMO's proposals for bid validation?

3.5.7. NEMDE processes

The NEM dispatch engine (NEMDE) is the software developed and used by AEMO to manage central dispatch. Under the Rules, the central dispatch process aims to maximise the value of spot market trading by satisfying energy demand and all FCAS requirements using the least-cost combination of energy and FCAS bids, subject to technical limits on the provision of those services.

There are several technical limits related to FCAS that are used to define the potential parameters of a particular unit's FCAS response, as outlined in AEMO's FCAS model in NEMDE guide. These limits are:

- Enablement Min (MW)
- Low Breakpoint (MW)
- High Breakpoint (MW)
- Enablement Max (MW)
- Max Availability (MW)

Using these technical limits, what is referred to as a FCAS generic trapezium is formed that is scaled to define the frequency response capability of the VSR in relation to its power generation, consumption, or load reduction. FCAS bids submitted by a VSR must be within these limits, as determined by the values provided during the VSR's initial FCAS registration.

If a VSR is considered for enablement for a particular FCAS in NEMDE, further constraints will be imposed within NEMDE to ensure that the unit can physically deliver all the energy for which it has been dispatched, and all the FCAS for which it has been enabled. This process is known as energy and FCAS co-optimisation within NEMDE, and includes a series of constraints to represent the unit's combined ramping and capacity capabilities. This co-optimisation may result in further limitations to the VSR's FCAS maximum frequency response capabilities.

Question 26

26. What information do you think it would be useful for AEMO to include in the Guidelines on NEMDE processes to support prospective VSRPs?

3.5.8. Dispatch

Dispatch bids

VSRPs must comply with the applicable requirements of NER clause 3.8.6 when submitting a dispatch bid. This includes a dispatch bid for a VSR meeting the same requirements as that for an existing scheduled BDU, that is the bid may contain up to 10 price bands for production from, and up to 10 price bands for consumption by, the VSR for each of the 288 trading intervals in the trading day. Like bids for existing unit types, prices in BDU bid bands used for a VSR are required to monotonically increase in each direction. Prices specified in dispatch bids are to apply at the market connection point of the VSR, or each market connection point of the VSR aggregation.

For VSR comprised of one or more market bidirectional units, the actual SCADA state of charge (initial energy available) in each trading interval in respect of the VSR DUID must also be provided, (the change has been made as part of the implementation of the Enhancing Reserve Information (ERI) rule change).

Under clause 3.8.3A(b)(1)(iv), the minimum ramp rate is equal to the minimum ramp rate requirement for the aggregation of NMIs within the VSR. As outlined in section 3.5.4, AEMO proposes that dispatch bids for a VSR must, to a VSR's best effort, meet the requirements of AEMO's Dispatch procedure under Section 2.8 Ramp rates in energy dispatch instructions.

As proposed in section 3.5.1, all VSR portfolios regardless of VSR zone will receive a loss factor of one for the purposes of central dispatch.

Dispatch instructions

VSRPs will be required to build capability to receive and conform with dispatch instructions from AEMO for VSRs in active mode using the existing BDU dispatch instruction format. A VSRP must ensure that each of its qualifying resources in an active VSR can always comply with its latest dispatch bid. AEMO may at any time give an instruction to a VSRP in relation to any of its VSRs, in accordance with clause 4.9.5(b), nominating the level or schedule of power.

Under the final rule, inactive VSR are required to submit dispatch bids but are not required to follow dispatch instructions, and hibernated VSR are not required to submit dispatch bids or receive dispatch instructions as they do not participate in central dispatch.

Question 27

27. Do you have any suggestions for how AEMO should update its processes to allow VSR to submit dispatch bids and receive dispatch instructions?

3.5.9. Conformance

NER 3.10A.3(b)(5)(iv) requires AEMO to specify the dispatch conformance criteria that will be applied to VSR to ensure they conform to AEMO's operational requirements.

Dispatch conformance criteria is only applicable to active VSRs. Whilst inactive VSRs are still required to submit bids in accordance with clause 3.8.6, they are not required to follow dispatch instructions.

Dispatch conformance assessment

For each trading interval in which a VSR receives a dispatch instruction, AEMO proposes it will perform a dispatch conformance assessment. This assessment will be done using AEMO's standard Conformance Monitoring software (Compmon), which covers scheduled generating units, semi-scheduled generating units, scheduled bidirectional units, scheduled loads, and aggregates. Compmon operates continuously in AEMO control rooms, and conformance calculations are initiated immediately following each dispatch calculation.

The inputs of the VSR dispatch conformance assessment are the following data points, aggregated at the DUID level for each trading interval in which a VSR was dispatched for either energy or FCAS:

- Actual generation/consumption, in MW
- Dispatch target (MWB), in MW
- Bid unit availability (MWO)
- Rate of change or ramp rate (ROC)
- FCAS Raise Regulation enabled (FCR)
- FCAS Lower Regulation enabled (FCL)

AEMO proposes for conformance monitoring of VSRs that:

- Normal performance constraints will not be applicable to VSR as they are to scheduled generators, scheduled market loads and scheduled bidirectional units, including the minimum Small Error Trigger and Larger Error Trigger threshold of 6 MW. This includes because the current 6 MW trigger threshold has been set for generators typically 30 MW or greater, and would therefore likely result in constant triggers in the context of the expected size of VSRs. AEMO proposes, and would like to hear from stakeholders on what they consider would be reasonable to set as the error threshold, that the error threshold for VSR will be set to be appropriate in relation to the chosen minimum nameplate or combined nameplate rating for VSR.
- A Conformance Data Report will be published to participants for their applicable VSR following each Conformance Module calculation, once per trading interval.
    - AEMO expects that VSRPs will use the Conformance Data Report to undertake any necessary technical, telemetry or communication improvements in order to resolve the dispatch non-conformance issue.
- In the case of identification of non-conformance, AEMO proposes it will not declare the VSR as non-conforming or send market conformance notices out to the VSRP.

- Instead of the usual two trading intervals limit to allow a Market Participant to submit a rebid or to follow the Dispatch targets before its status is changed to non-conforming, AEMO proposes it will monitor for repeated incidences of dispatch non-conformance by a VSR under clause 3.8.23B(b) that it deems to be unacceptable or a threat to power system security. AEMO has chosen to take this approach to help support the participation of VSR in central dispatch, and provide lenience where appropriate and there is a low risk to system security to help VSRP establish and mature their technical capabilities. In doing so, AEMO also acknowledges and appreciates the instances where VSRs, and their participation in central dispatch, can aid system security through greater visibility, and so would like to consult with stakeholders on whether this proposal correctly balances participation and system security.
- In the case of repeated non-conformance without rectification:
  - Under clause 3.8.23B(e) AEMO will limit the available capacity of the non-conforming VSR to a maximum figure (a non-conformance constraint) determined by AEMO for so long as the VSR remains non-conforming.
  - The Market Participant will be advised that the VSR has been declared non-conforming and that a non-conformance constraint has been applied.
  - The VSR is to remain at the loading determined by the non-conformance constraint until AEMO is advised by the Market Participant that it is now capable of meeting its dispatch instructions.

Questions 28-29

28. To what extent does AEMO's proposed approach to dispatch conformance appropriately balance ease of participation with the secure operation of the power system?

29. What other factors should AEMO consider in setting dispatch conformance requirements and parameters?

a. Do you have any views on what would be a reasonable error trigger to use in the context of the size of VSRs, or in how AEMO should approach setting this trigger?

3.5.10. Metering

NER 3.10A.3(b)(5)(v) requires that AEMO specify the acceptable types of metering installation for participating market connection points.

All meters at the market connection point must adhere to the requirements in Chapter 7 of the NER and to AEMO's procedures. Further, for VSR participation, AEMO proposes that:

- Small customer metering installations (NER 7.8.3) require a Type 4 category 4S meter that is capable of recording data in five-minute intervals and that can be remotely read.
- Small customer metering installations cannot be a Type 4A metering installation (NER 7.8.4) as telecommunication is required to participate in VSR. Metering installations for large

customers, non-scheduled generators/BDUs, and small resource connection points are in accordance with NER 7.8.8 and Schedule 7.4.

AEMO acknowledges that there are areas where manually read accumulation meters are still common and therefore not able to meet the requirements above for participation in a VSR as a qualifying resource. Under the Accelerating smart meter deployment rule change however, the number of smart meters is expected to increase in the coming years, with the final rules introducing new regulatory arrangements that will require retailers and metering coorindators (MCs) to replace all existing Type 5 and Type 6 metering installations ('legacy' meters) with a Type 4 ('smart' meter) meter by 1 December 2030.

VSR at secondary settlement point(s)

Under the Unlocking CER Benefits rule change, consumers and agents will be able to identify and manage flexible, price-responsive CER from inflexible or passive energy use by establishing a secondary settlement point(s) for controllable resource(s) within the electrical installation. AEMO proposes that for a qualifying resource at a secondary settlement point to participate in central dispatch as part of a VSR, they must:

- Meet the requirements in Chapter 7 of the NER and AEMO's procedures that set out the services for type 8A (Large customers), type 8B (small customers) and type 9 connections.
- Be capable of recording data in five-minute intervals and that can be remotely read.
- For large, type 8A customers, the secondary settlement point may have a different market participant to the connection point, but this market participant (VSRP/FRMP) must be that of the VSR the qualifying resource is aggregated within.
- For small, type 8B customers, the VSRP/FRMP for the VSR that the qualifying resource is to be aggregated within must be the same for the connection point and secondary settlement point.
- Type 9 customers can be a qualifying resource for a VSR if they are able to meet all the technical and communication requirements in section 3.5.4, including the market participant for the Type 9 connection being the VSRP and FRMP for the VSR the Type 9 connection is to be aggregated within.

Question 30

30. What are your views on the metering requirements proposed by AEMO for qualifying resources in a VSR?

3.5.11. Settlement

This section will refer to the matters of NEM settlement as it applies for settlement between AEMO and the FRMP/VSRP. It does not include consideration for how a VSRP passes on costs or payments to the qualifying resources in its VSR, as this is outside AEMO's responsibility and role.

Energy settlement

Metering data, at the individual NMI-level for each qualifying resource within a VSR, will be used in settlements. Energy settlements for VSR will be covered using existing settlements processes, outlined under the Settlements and payments page on AEMO's website, with the VSRPs being the FRMPs for the NMIs within a VSR.

Non-energy cost recovery

The VSRP, as the FRMP in respect of a market connection point nominated as a VSR under NER 3.10A.3(b)(3), will also be the Cost Recovery Market Participant (CRMP) in respect of that market connection point nominated as a VSR. Table 9 summarises the NECR arrangements that are associated with the different participation modes for VSR according to the final rule. As Table 9 explains, for a VSR to be excluded from the Reliability and Emergency Reserve Trader (RERT) and energy directions cost recovery, it must be participating in dispatch and be an active VSR. The energy consumed by VSRs that are inactive or hibernating would not be excluded from the calculations under clauses 3.15.8(b) and 3.15.9(e), and the relevant VSRPs will be subject to those costs.

Table 9: Non-energy cost recovery (NECR) arrangements for VSRPs under the final rule associated with the different VSR participation modes

Area	Recovery item	Active	Inactive	Hibernated
Frequency control ancillary services (FCAS)	Contingency raise	CRMPs based on ASOE	CRMPs based on ASOE	CRMPs based on ASOE
	Contingency lower	CRMPs based on ACE	CRMPs based on ACE	CRMPs based on ACE
	Regulation	CRMPs with appropriate metering/SCADA for contribution factors, and other CRMPs for the residual	CRMPs with appropriate metering/SCADA for contribution factors, and other CRMPs for the residual	CRMPs for the residual
Frequency performance payments		CRMPs with appropriate metering/SCADA for contribution factors, and other CRMPs for the residual	CRMPs with appropriate metering/SCADA for contribution factors, and other CRMPs for the residual	CRMPs for the residual
Non-market ancillary services (NMAS)	Network support control	CRMPs based on ACE	CRMPs based on ACE	CRMPs based on ACE

Area	Recovery item	Active	Inactive	Hibernated
	ancillary services (NSCAS)			
	System restart ancillary services (SRAS)	CRMPs based on ASOE (half) and based on ACE (half)	CRMPs based on ASOE (half) and based on ACE (half)	CRMPs based on ASOE (half) and based on ACE (half)
Interventions	Direction – energy	Excluded	CRMPs based on ACE	CRMPs based on ACE
	Direction – FCAS	CRMPs based on ASOE and ACE	CRMPs based on ASOE and ACE	CRMPs based on ASOE and ACE
	Reliability and emergency reserve trader (RERT)	Excluded	CRMPs based on ACE	CRMPs based on ACE
	Market suspension	CRMPs based on ACE	CRMPs based on ACE	CRMPs based on ACE
	Other directions under clause 4.8.9 related to system security	CRMPs based on ASOE and ACE	CRMPs based on ASOE and ACE	CRMPs based on ASOE and ACE
Other	Administered price cap or administered floor price compensation	CRMPs based on ACE	CRMPs based on ACE	CRMPs based on ACE

Question 31

31. Is AEMO's explanation of the settlement and NECR arrangements for VSR across the participation modes useful information to be included in the VSR Guidelines?

3.5.12. Prudential management

A Market Participant may only participate in any of the markets or trading activities conducted by AEMO if that Market Participant satisfies the relevant prudential requirements set out in Chapter 3 of the NER applicable to the relevant trading activity.

VSRPs will, like all registered Market Participants, have access to the NEM Prudential Forecast that is part of AEMO's Electricity Market Management System (EMMS) web portal. The NEM Prudential Forecast provides participants with a forecast of their expected prudential position for the next NEM business day, enabling participants to better manage their prudential obligations. Prudential forecasts will be adjusted where necessary to accommodate VSRs, including consideration for VSRs in deactivation or hibernation mode. This includes reflecting the NECR arrangements for settlements across the VSR participation modes as outlined in Table 9.

Similarly, AEMO will adjust where necessary its prudential estimations. Prudential estimations are used for days where final or preliminary settlement data is not available, and involves two types of estimations that can be performed as described in the Settlements estimation for prudentials assessment guide.

Question 32

32. Do you have any recommendations on the content or processes by which AEMO will adjust its prudential assessments for VSRPs and their VSR?

3.5.13. Data and information sharing

NER 3.10A.3(b)(6)(i) requires AEMO to specify the processes for VSRPs to share data with DNSPs or (where relevant) Transmission Network Service Providers (TNSPs). AEMO is considering these processes for data sharing between VSRPs and DNSPs and (where relevant) TNSPs, and how they may align with other current AEMO initiatives, including the MITE program and the CER Data Exchange.

NER 3.10A.3(b)(6)(ii) requires AEMO to specify the processes for the disclosure of data collected by AEMO from VSRPs to DNSPs and TNSPs (as applicable), including obligations of confidentiality that will apply to any such disclosures. Table 10 summarises the types of VSR data that AEMO has considered and AEMO's initial proposals for which of this data is to be shared with DNSPs and where relevant TNSPs.

In relation to VSR standing data for NMIs within a VSR, including SSPs within a VSR, AEMO has left whether DNSPs and where relevant TNSPs will have access to this data as 'To be determined.' In doing so, AEMO would like to use this consultation paper to hear from both DNSPs/TNSPs and VSRPs regarding if this data should be shared with DNSPs/TNSPs, and if so the reasoning behind the need for this data, and how this data will be shared. Approaching this consultation, AEMO considers that DNSPs/TNSPs will require particular data to:

- Appropriately manage and estimate the individual market connection point responses that could be given for a VSR in their network.
- Calculate DOEs.

If AEMO was to provide DNSPs and where relevant TNSPs with data on the NMIs within a VSR, existing processes for information access, including MSATS for NMI standing data and the DER Register, would already be accessible by DNSPs/TNSPs.

AEMO however identifies that NMIs within a VSR can either be connected:

- At the market connection point on the distribution or transmission network.
- At secondary settlement points.
- At an on-market child NMI within an embedded network.

DNSPs would not therefore have access to on-market child NMIs within an embedded network, including under NER 7.15.5, given their current responsibility under the NER for managing an embedded network is only to allocate and register the Parent NMI and NMI standing data in MSATS and attach the embedded network identifier. AEMO has initially proposed in Table 10 that DNSPs/TNSPs would not have a right to access child NMI information within an embedded network, and therefore would like to consult on whether DNSPs/TNSPs see a significant need for a right to access this information for VSRs.

Some other information that DNSPs/TNSPs may require, including total bid quantity, AEMO notes can also already be accessed through existing channels.

Table 10: AEMO's proposed data and processes for sharing VSR data collected from VSRPs with DNSPs and where relevant TNSPs

Data type	Source of data	DNSP/TNSP access	How DNSP/TNSP can access	Frequency	VSR Mode
VSR standing data					
NMIs (including SSPs) within VSR	PMS	To be determined	AEMO to DNSP/TNSP DNSPs/TNSPs will have right to access SSPs info via MSATS from Unlocking CER Benefits go-live	As frequently as changes occur	All modes
Embedded network on market child NMIs within VSR	PMS	No	DNSPs/TNSPs do not have a right to access NMI information within an embedded network	N/A	N/A
DUID	Website publication of Registration and Exemption list	Yes	AEMO to DNSP/TNSP	As frequently as changes occur	All modes

Data type	Source of data	DNSP/TNSP access	How DNSP/TNSP can access	Frequency	VSR Mode
VSR mode – active, inactive, hibernated	PMS	Yes	AEMO to DNSP/TNSP	As frequently as changes occur	All modes
Bidding & dispatch					
Bid quantity (submitted by VSRP)	Market Portal (VSRP to AEMO)	Yes	AEMO to DNSP/TNSP	Daily – Post market	Active, Inactive
Bid price (submitted by VSRP)	Market Portal (VSRP to AEMO)	No	No need to access	N/A	N/A
Final dispatch quantity	Market summary report (public)	Yes	DNSP/TNSP access to market summary report	Daily – Post market	Active
Final dispatch price	Market summary report (public)	Yes	DNSP/TNSP access to market summary report	Daily – Post market	Active
ST PASA	Market Portal (VSRP to AEMO)	No	No need to access	N/A	N/A
Ramp rates	Market Portal (VSRP to AEMO)	Yes	AEMO to DNSP/TNSP	Daily	Active

Questions 33-37

33. What data do DNSPs, and where relevant TNSPs, reasonably believe they will require from VSRPs or AEMO and for what purpose/s?

34. Do DNSPs/TNSPs have a preference for which AEMO system or process they receive data from, or are there alternative ways this data could be provided?

35. From the prospective VSRP perspective, are there any privacy concerns related to the sharing of NMIs within a VSR with DNSPs and where relevant TNSPs?

36. What confidentiality concerns do you have regarding the disclosure of data from VSRPs or AEMO with DNSPs and TNSPs (as applicable)?

37. Do you see any issues with the other processes for the disclosure of data collected by AEMO from VSRPs to DNSPs and TNSPs (as applicable)?

3.6. Any other matters

AEMO is pleased to consider including other matters in the VSR Guidelines, if stakeholders believe such additions are appropriate. Any such matters should be outlined in written submissions to this consultation paper.

Appendix A. Glossary

Term or acronym	Meaning
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
ACE	Adjusted consumed energy
ASOE	Adjusted sent out energy
BDU	Bidirectional Unit
CER	Consumer Energy Resources
CP	Connection point
CRMP	Cost recovery market participant
DER	Distributed Energy Resources
DNSP	Distribution Network Service Provider
DRSP	Demand Response Service Provider
DSP	Demand side participant
DUID	Dispatchable unit identifier
ESB	Energy Security Board
FCAS	Frequency control ancillary services
FPP	Frequency Performance Payments
FRMP	Financially Responsible Market Participant
IPRR	Integrating price-responsive resources into the NEM – rule change
IRP	Integrated Resource Provider
MASS	Market Ancillary Services Specification
MMS	Market Management System
MSATS	Market settlement and transfer solutions
MT PASA	Medium term projected assessment of system adequacy
MW	Megawatt
MWh	Megawatt hour
NECR	Non-Energy Cost Recovery
NEM	National Electricity Market
NEMDE	National Electricity Market Dispatch Engine
NER	National Electricity Rules
NMI	National Metering Identifier
NSP	Network service provider
PD / Pre-Processing	Pre-dispatch or other known as ‘Pre-Processing’ feeds into ‘NEMDE’
PMS	Portfolio Management System
Post Processing	Process after ‘NEMDE’
Price-Responsive resources	Price-responsive resources refer to the wide range of residential, community, commercial and industrial energy resources and load that are not currently scheduled through the market dispatch process and do, or could, respond (individually or as part of aggregation) to market price signals. It includes but not limited to household CER such as solar PV, batteries, EVs, flexible hot water systems, pool pumps and industrial loads with components of controllable demand (for example smelters, foundries and manufacturing facilities).
RERT	Reliability and Emergency Reserve Trader

Term or acronym	Meaning
RMC	Registration Manager Client
SCADA	Supervisory Control and Data Acquisition
SOC	State of charge
ST PASA	Short Term Projected Assessment of System Adequacy
TI	Trading Interval
Trading Interval (TI)	A period for which AEMO settles trading amounts in the NEM. A trading interval is defined in the Rules as a 5-minute period.
VIM	VSR incentive mechanism
VPP	Virtual Power Plants
VSR	Voluntarily Scheduled Resource
VSRP	Voluntarily Scheduled Resource Provider
WDR	Wholesale Demand Response Mechanism
WDRU	Wholesale Demand Repsonse Unit

Appendix B. Response template

This template is provided to assist stakeholders in giving feedback to the consultation paper for the development of the VSR Guidelines.

It is optional to use this template.

Stakeholders are invited to submit written responses on this consultation paper are invited to NEMReform@aemo.com.au by **5:00pm (Melbourne time) on 20 March 2025**.

Participant name	
Submission Date	

Section	Question	Participant comments
3.2	1. What should be the effective date of the VSR Guidelines?	
3.3	2. Do the proposals in this consultation paper strike the right balance between ease of participation for VSRs in central dispatch and the need to maintain a secure and reliable NEM power system?	
3.5	3. How appropriate is AEMO's proposed structure for the new VSR Guidelines?	
3.5.1	4. To what extent do you agree with all VSRs, independent of zone, being allocated a loss factor of one?	

Section	Question	Participant comments
	5. Other than the NEM zonal classifications presented, what other zonal classifications could be appropriate to use as the basis of VSR zones? What are these and why would they be suitable?	
	6. What are the the key factors to consider when setting VSR zones now and in the future as the industry gains more experience with and information on dispatch mode?	
	7. How should VSR zones be set to balance cost and ease of participation for VSR with AEMO's need to manage power system security and reliability? a. What are your views on the potential use of NEM regions as VSR zones in the early years of dispatch mode when VSRs are expected to be small with a transition to VSR zones that better support system security as VSRs grow? In this scenario, what would the transition impacts be? b. What are the existing or potential issues with having an inconsistent approach to zonal classifications between VSRs and WDRUs? c. What impact/s do DNSPs see from the proposal to use congestion zones as the basis for VSR zones rather than distribution network boundaries?	
	8. Does the selection of VSR zones impact your existing VPP portfolio?	

Section	Question	Participant comments
	9. Do you currently have a VPP portfolio that operates across the NEM regions and/or distribution networks?	
	10. To what extent do you agree with the requirements, conditions and processes for VSRPs forming VSR aggregations within the proposed zones?	
	11. Do you agree with AEMO's minimum lead time of six months for a change in zones?	
3.5.2	12. What other factors should be considered in setting the minimum VSR nameplate rating threshold and why?	
	13. What are your views on an initial lower VSR nameplate rating threshold that adapts as dispatch mode capability and capacity grows?	
	14. What are the options for aggregations of > 1 MW to participate in dispatch mode, given the 1 MW bidding threshold?	
	15. Do you have any feedback you would like to provide on the nomination process for a VSR?	
	16. What issues do you see with AEMO's requirements for qualifying resources within a VSR or for a VSR?	
3.5.3	17. Do you see any issues with AEMO's circumstances where it may request VSRPs that have aggregated qualifying resources	

Section	Question	Participant comments
	to declare individual qualifying resource availability and operating status? What other factors should be considered?	
	18. What are your views on the processes and settings AEMO should estbalish to deal with cases of NMI churn resulting in a VSR dropping below the minimum threshold?	
3.5.4	19. Are there any other matters AEMO should consider in relation to the proposed telemetry requirements?	
	20. To what extent does the proposed approach to telemetry appropriately balance between minimising barriers to VSR development and system security considerations?	
	21. To what extent do you agree with AEMO's proposed approach to the: a. Initial capability assessment? b. Periodic capability assessments, including any views you have on the triggers and frequency of such assessments? c. Operational requirements for telemetry and communications equipment for VSR?	
3.5.5	22. Do you agree with AEMO's notice periods for switching between VSR participation modes?	

Section	Question	Participant comments
	a. Are you able to provide examples of how the proposed notice periods may impact your participation in IPRR? b. Are there any other considerations AEMO should include in setting its notice periods and information requirements?	
	23. Do you agree that VSR can only switch between modes on a per day basis, rather than per time intervals within the day?	
	24. Do you agree with the notice information requirements that AEMO proposes?	
3.5.6	25. Do you have any suggestions on AEMO's plans to incorporate VSR bidding into its existing BDU bidding processes, or any other comments on AEMO's proposals for bid validation?	
3.5.7	26. What information do you think it would be useful for AEMO to include in the Guidelines on NEMDE processes to support prospective VSRPs?	
3.5.8	27. Do you have any suggestions for how AEMO should update its processes to allow VSR to submit dispatch bids and receive dispatch instructions?	
3.5.9	28. To what extent does AEMO's proposed approach to dispatch conformance appropriately balance ease of participation with the secure operation of the power system?	

Section	Question	Participant comments
	29. What other factors should AEMO consider in setting dispatch conformance requirements and parameters? a. Do you have any views on what would be a reasonable error trigger to use in the context of the size of VSRs, or in how AEMO should approach setting this trigger?	
3.5.10	30. What are your views on the metering requirements proposed by AEMO for qualifying resources in a VSR?	
3.5.11	31. Is AEMO's explanation of the settlement and NECR arrangements for VSR across the participation modes useful information to be included in the VSR Guidelines?	
3.5.12	32. Do you have any recommendations on the content or processes by which AEMO will adjust its prudential assessments for VSRPs and their VSR?	
3.5.13	33. What data do DNSPs, and where relevant TNSPs, reasonably believe they will require from VSRPs or AEMO and for what purpose/s?	
	34. Do DNSPs/TNSPs have a preference for which AEMO system or process they receive data from, or are there alternative ways this data could be provided?	
	35. From the prospective VSRP perspective, are there any privacy concerns related to the sharing of NMIs within a VSR with DNSPs and where relevant TNSPs?	

Section	Question	Participant comments
	36. What confidentiality concerns do you have regarding the disclosure of data from VSRPs or AEMO with DNSPs and TNSPs (as applicable)?	
	37. Do you see any issues with the other processes for the disclosure of data collected by AEMO from VSRPs to DNSPs and TNSPs (as applicable)?	
3.6	Are there any other matters AEMO should consider as part of the development of the VSR Guidelines?	