WHOLESALE DEMAND RESPONSE GUIDELINES – INITIAL VERSION

DRAFT REPORT AND DETERMINATION

Published: **January 2021**

NOTICE OF SECOND STAGE CONSULTATION – WHOLESALE DEMAND RESPONSE GUIDELINES

National Electricity Rules – Rule 8.9

Date of Notice: 21 January 2021

This Notice of Second Stage of Rules Consultation (**Notice**) informs all Registered Participants and interested parties (**Consulted Persons**) that AEMO is commencing the second stage of its consultation on the development of the Wholesale Demand Response (WDR) Guidelines (**Guidelines**).

This consultation is being conducted under clause 3.10.1(e) of the National Electricity Rules (**NER**), in accordance with the Rules consultation procedures detailed in rule 8.9 of the NER.

Invitation to make Submissions

AEMO invites written submissions on this Draft Report and Determination (**Draft Report**).

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.

Consulted Persons should note that material identified as confidential may be given less weight in the decision-making process than material that is published.

Closing Date and Time

Submissions in response to this Notice should be sent by email to wdr@aemo.com.au, to reach AEMO by 5.00pm (Melbourne time) on 19 February 2021.

All submissions must be forwarded in electronic format (both pdf and Word). Please send any queries about this consultation to the same email address.

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.

Publication

All submissions will be published on AEMO's website, other than confidential content.

EXECUTIVE SUMMARY

The publication of this Draft Report and Determination (**Draft Report**) commences the second stage of the Rules consultation process conducted by AEMO on the Wholesale Demand Response (**WDR**) Guidelines (**Guidelines**) under clause 3.10.1 of the National Electricity Rules (**NER**).

On 11 June 2020, the Australian Energy Market Commission (**AEMC**) made the final rule (*National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9*) (**Rule**) to facilitate WDR in the National Electricity Market (**NEM**) through implementing the WDR mechanism (**WDRM**).

The WDRM will be implemented on 24 October 2021. The substantive parts of the Rule – in particular, as referenced in this Draft Report – will commence on 24 October 2021.

The Guidelines must be made and published by 24 June 2021, being four months before 24 October 2021, as required under NER clause 11.125.2(a)(1).

On 22 October 2020, AEMO published the Issues Paper for the Guidelines, through which AEMO aimed to facilitate informed industry feedback to AEMO on the requirements and processes to be set out in the Guidelines.

AEMO received seven submissions in respect of the Issues Paper. Multiple respondents provided feedback on each of 10 of the 11 issues in the Issues Paper.

In response, AEMO has made several changes to its proposals as set out in this Draft Report, including:

- requiring that an aggregation of wholesale demand response units (**WDRUs**) may only include WDRUs within a single load forecasting area as set out in the *Power System Operating Procedure – Load Forecasting* (SO_OP_3710);
- introducing a requirement for the relevant Distribution Network Service Provider (**DNSP**) to endorse a proposed aggregation of WDRUs under certain conditions (**DNSP Endorsement**);
- relaxing the telemetry and communications requirements in respect of geographically dispersed aggregations of WDRUs, as enabled by the DNSP Endorsement; and
- allowing for the provision of items of baseline data to DNSPs to support the security of the supply of electricity and the national electricity system, under section 54G(1) of the National Electricity Law (**NEL**).

Accordingly, AEMO's draft determination is to make the draft Guidelines in the form published with this Draft Report.

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1. STAKEHOLDER CONSULTATION PROCESS

As required under NER 3.10.1(e), AEMO is consulting on the development of the Guidelines in accordance with the Rules consultation procedures in NER 8.9. The publication of this Draft Report marks the commencement of the second stage of consultation (**Second Stage Consultation**).

AEMO's indicative timeline for the Second Stage Consultation is outlined in Table 1 below. Some dates have changed since the publication of the Issues Paper. Future dates may be adjusted depending on the number and complexity of issues raised in submissions.

Table 1 Indicative timeline for this consultation

Deliverable	Indicative date
Notice of First Stage Consultation and Issues Paper published	22 October 2020
First stage submissions closed	27 November 2020
Draft Report, Draft Guidelines & Notice of Second Stage Consultation published	21 January 2021
Second stage submissions close	19 February 2021
Final Report published	25 March 2021

This consultation has included various discussions at meetings and workshops:

- AEMO established the WDR Guidelines Technical Working Group (**WDRG-TWG**) to enable effective dialogue between AEMO and stakeholders.[1] The topics covered in the Guidelines were discussed at WDRG-TWG meetings on 11 August 2020 and 12 October 2020.
- AEMO hosted a workshop with WDRG-TWG members on 23 November 2020 during the first stage of consultation (**First Stage Consultation**) to provide an opportunity for stakeholders to ask questions about issues in the Issues Paper.
- AEMO presented a summary of stakeholder submissions to the Issues Paper, as well as AEMO's consideration of these submissions, at the WDR Consultative Group (**WDR CG**) meeting on 15 December 2020.[2]

A glossary of terms used in this Draft Report is at Appendix A.

[1] The WDRG-TWG terms of reference and records of meetings are available at https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/wdr.

[2] The WDR CG terms of reference and records of meetings are available at https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/wdr.

2. BACKGROUND

2.1. NER requirements

NER 3.10.1(a) requires AEMO to develop and publish, and allows it to amend, the Guidelines, which set out:

- requirements determined by AEMO which AEMO reasonably considers necessary for classification of a load as a WDRU in accordance with NER 2.3.6 or for aggregation in accordance with NER 3.8.3;
- information about the requirements for telemetry and communications equipment for WDRUs;
- the methodology for determination of a threshold for the total quantity of WDR in a region above which AEMO will impose additional or alternative telemetry and communications equipment requirements for any load in the region seeking to be classified as a WDRU after the threshold is reached;
- information about the process for development of baseline methodologies (**BMs**), including how proposals for new BMs may be made;
- the process for a Demand Response Service Provider (**DRSP**) to apply to AEMO for approval to apply a BM and related baseline settings to a WDRU;
- the process for a DRSP to apply to AEMO for approval to change the maximum responsive component (**MRC**) of its WDRU;
- arrangements for the provision of information about the MRC of the WDRU and the BM and baseline settings applicable to the WDRU; and
- other information determined by AEMO relating to the supply of WDR under the NER.

NER 3.10.1(b) requires AEMO, in developing or amending the Guidelines, to have regard to:

- the need not to distort the operation of the market;
- the need to maximise the effectiveness of WDR at the least cost to end use consumers of electricity; and
- any other matter determined by AEMO acting reasonably and which must be specified by AEMO in the Guidelines.

NER 3.10.1(e) requires AEMO to comply with the Rules consultation procedures when making or amending the Guidelines.

2.2. Context for this consultation

On 11 June 2020, the AEMC made the Rule to facilitate WDR in the NEM through implementing the WDRM. Under the WDRM, consumers would be able to sell demand response in the wholesale market either directly or through specialist aggregators, for the first time.

The WDRM will be implemented on 24 October 2021. The substantive parts of the Rule – in particular, as referenced in this Draft Report – will commence on 24 October 2021.

The Guidelines must be made and published by 24 June 2021, being four months before 24 October 2021, to allow registration and classification processes to commence transitionally, as required under NER clause 11.125.2(a)(1).

2.2.1. WDRM does not include all forms of demand-side participation

The Rule was designed "to allow meaningful volumes of demand-side participation in dispatch and associated system operation benefits at minimal cost and in the near term".[3]

The AEMC noted that:

- the WDRM will not suit all types of demand-side participation, as it "requires consumer loads to be controllable for the purposes of scheduling and predictable for the purposes of baselines";[4]
- other customers may be able to provide demand response through other mechanisms, such as "retailer-led demand response programs or providing emergency reserves through the reliability and emergency reserve trader";[5] and
- potential future reforms to create a two-sided market, which could supersede the WDRM, "would result in consumers benefiting from increasing opportunities to provide demand response services".[6]

Accordingly, AEMO has had regard to the requirements for loads participating in the WDRM to be controllable and predictable.

2.3. First stage consultation

On 22 October 2020, AEMO issued the Notice of First Stage Consultation and published the Issues Paper, through which AEMO aimed to facilitate informed industry feedback on the requirements and processes to be set out in the Guidelines.

On 23 November 2020, AEMO hosted the workshop with WDRG-TWG members, to provide an opportunity for stakeholders to ask questions about issues in the Issues Paper, prior to the deadline for submissions.

AEMO received seven written submissions in respect of the Issues Paper. Copies of all written submissions, as well as minutes of meetings and issues raised in forums (excluding any confidential information) are available from: https://aemo.com.au/consultations/current-and-closed-consultations/wdr-guidelines.

On 15 December 2020, AEMO presented a summary of these submissions, as well as AEMO's consideration of these submissions, at the WDR CG meeting.

By 31 December 2020, AEMO had also met with several individual stakeholders, including a mixture of current gentailers, specialist demand response aggregators, large customers and Network Service Providers (**NSPs**).

[3] AEMC, 11 June 2020, *Rule Determination, National Electricity Amendment (Wholesale Demand Response Mechanism) Rule 2020 / National Electricity Retail Rule (Wholesale Demand Response Mechanism) Rule 2020*, page iii, https://www.aemc.gov.au/sites/default/files/documents/final_determination_-_for_publication.pdf.

[4] Ibid.

[5] Ibid.

[6] Ibid.

3. SUMMARY OF MATERIAL ISSUES

Multiple respondents provided feedback on each of 10 of the 11 issues in the Issues Paper.

The key issues are summarised in Table 2 below and detailed in section 4 of this Draft Report.

Table 2 Listing of material issues arising from the proposal

No.	Issue	Raised by
1.	Principles for developing and amending the Guidelines	Multiple respondents
2.	Scope of the Guidelines	Multiple respondents
3.	Conditions for classification of a load as a WDRU	Multiple respondents
4.	Conditions for aggregation of WDRUs	AEMO
5.	Assessment of power system security impacts of WDRU aggregation	Multiple respondents
6.	WDRU telemetry and communications requirements	Multiple respondents
7.	Regional thresholds for increased visibility of WDRUs	Multiple respondents
8.	Baseline methodology development process	Multiple respondents
9.	Applying a baseline methodology and settings to a WDRU	Multiple respondents
10.	Maximum responsive component	Multiple respondents
11.	Access to baseline data	Multiple respondents

A detailed summary of the issues raised by Consulted Persons in submissions, together with AEMO's response, is contained in Appendix B.

4. DISCUSSION OF MATERIAL ISSUES

4.1. Principles for developing and amending the Guidelines

4.1.1. Issue summary and submissions

AEMO must have regard to a set of principles when developing or amending the Guidelines (**Guidelines Principles**).

The Guidelines Principles:

- must include the principles in NER 3.10.1(b)(1)-(2) (**Mandatory Principles**), being, respectively:
  - market operation non-distortion (**Mandatory Principle 1**); and
  - WDRM effectiveness maximisation at least cost to consumers (**Mandatory Principle 2**); and
- may include any other principles which AEMO specifies in the Guidelines, as per NER 3.10.1(b)(3) (**Additional Principles**).

Finally, in making and amending the Guidelines, AEMO must have regard to the national electricity objective in NEL section 7 (**NEO**):

> *The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
> *(b) the reliability, safety and security of the national electricity system.*

In the Issues Paper, AEMO proposed that the Guidelines should require AEMO to have regard to the following Additional Principles in developing or amending the Guidelines:

- the need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply (**Additional Principle 1**); and
- the ability of DRSPs to provide WDR through a range of methods (**Additional Principle 2**).

Accordingly, the Issues Paper (Questions 3.2 and 3.3) asked stakeholders to:

- indicate the extent to which they agreed with the proposed Additional Principles; and
- propose and justify any other Additional Principles which they considered appropriate.

In response, the proposed Additional Principles were generally supported by Origin, PIAC and VIOTAS.

Further Additional Principles were proposed by:

- Origin of "the need to ensure consistency with obligations placed on other scheduled market participants, as far as practicable" (**Additional Principle 3**);
- Origin of "the need for timely data provision" (**Additional Principle 4**); and
- PIAC of the recognition of "the broad benefits of WDR and that the development of the WDR market through increased participation is in the interests of consumers" (**Additional Principle 5**).

Enel X:

- commented that principles may need to be weighed against each other when deciding upon the Guidelines, particularly
  - Additional Principle 1; and
  - Mandatory Principle 2; and

- cautioned against using the introduction of the WDRM as an opportunity to impose obligations on DRSPs to address broader power system security or reliability issues that are not caused or worsened by the WDRM.

4.1.2. AEMO's assessment

AEMO's assessment in relation to the inclusion of Additional Principles is guided by the NEO, noting that AEMO's decisions to make and amend the Guidelines must have regard to the NEO. AEMO's assessment has also sought to avoid duplication among the Guidelines Principles, in order to avoid duplicative effort when assessing the initial Guidelines and any future amendments.

Table 3 provides AEMO's assessment of the Additional Principles that were proposed in the Issues Paper and in submissions.

Table 3 AEMO's assessment of the proposed Additional Principles

Additional Principle		Proposed by	Consistency with NEO	Duplication among Guidelines Principles
1	The need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply	AEMO	Yes – Additional Principle 1 includes the concepts of security and reliability	No – Additional Principle 1 does not duplicate: • Mandatory Principle 1 of market operation non-distortion; and • Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost
2	The ability of DRSPs to provide WDR through a range of methods	WDRG-TWG	Yes – Additional Principle 2 promotes market efficiency by maximising participation and lowering barriers to entry	Yes – Additional Principle 2 duplicates Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost
3	The need to ensure consistency with obligations placed on other scheduled market participants, as far as practicable	Origin	Yes – Additional Principle 3 promotes a level playing field and efficient investment	Yes – Additional Principle 3 duplicates: • Additional Principle 1, because the objective of consistent obligations is the maintenance of security/reliability; and • Mandatory Principle 1 of market operation non-distortion
4	The need for timely data provision	Origin	Yes – Additional Principle 4 supports efficient decision-making by market participants	Yes – Additional Principle 4 duplicates: • Mandatory Principle 1 of market operation non-distortion; and • Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost, which are the objectives of timely data provision
5	The recognition of the broad benefits of WDR and that the development of the WDR market through increased participation is in the interests of consumers	PIAC	Yes – Additional Principle 5 is consistent with the NEO, to the extent that the WDRM's introduction will contribute to the NEO's achievement, as already assessed by the AEMC	Yes – Additional Principle 5 duplicates Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost

AEMO agrees with Enel X that:

- the Guideline Principles may need to be weighed, as is commonly required of decision makers, for example in applying the NEO by weighing price against reliability, safety and security; and
- the obligations on DRSPs should be commensurate with the operational impact of WDR, as is consistent with Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

4.1.3. AEMO's conclusion

Accordingly, AEMO has determined to include Additional Principle 1 in the draft Guidelines, being "the need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply".

4.2. Scope of the Guidelines

4.2.1. Issue summary and submissions

AEMO may include in the Guidelines any other information determined by AEMO related to the supply of WDR under the NER, which is additional to the information in NER 3.10.1(a)(1)-(7) (NER 3.10.1(a)(8)) (**Additional Information**).

In the Issues Paper, AEMO proposed to include the following Additional Information:

- explanation of how AEMO will assess the potential impacts of WDRU aggregation on power system security (section 4.5);
- explanation of how AEMO will assess the MRC proposed by a DRSP (section 4.10) in respect of:
  - a WDRU at a connection point (NMI-Level MRC); and
  - a WDR dispatchable unit identifier (DUID), which may comprise a single WDRU or an aggregation of WDRUs (DUID-Level MRC); and
- description of the arrangements for provision of WDR dispatch data to DRSPs and retailers, in addition to information about WDRU classification (section 4.11).

The Issues Paper asked stakeholders to propose any Additional Information, having regard to the trade-offs between flexibility and certainty, as well as the Guidelines development timeline (Question 3.1).

In response:

- AGL, Enel X and VIOTAS were generally supportive of AEMO's proposal. While these parties considered that it would be beneficial to include further Additional Information – particularly related to BM metrics, baseline compliance testing and dispatch non-conformance assessments – they recognised that this may extend the timeline for developing the initial Guidelines and suggested that this content could be added to the Guidelines at a later date.
- Energy Queensland suggested that:
  - the Guidelines should recognise the requirements for collaboration with DNSPs, who are best placed to assess any risks to the security of distribution networks posed by WDR, as well as to advise AEMO on where operational envelopes or disaggregation may be required; and
  - further information is required about how the WDRM will be implemented.

4.2.2. AEMO's assessment

The majority of submissions in respect of the Additional Information generally supported AEMO's proposal.

AEMO agrees with Energy Queensland that the Guidelines should describe the requirements for collaboration with DNSPs, as reflected, accordingly, in the Draft Report in respect of the assessment of the power system security impacts of aggregation (section 4.5) and access to baseline data (section 4.11).

Further, AEMO considers as appropriate the provision of WDRM information on:

- processes through the Guidelines, the Baseline Compliance and Metrics Policy, and the forthcoming document on dispatch non-conformance assessments;
- systems through user guides and technical specification documents; and
- implementation through AEMO's website and the WDR CG.

In this regard, AEMO considers that:

- such delineation of process, system and implementation is consistent with existing AEMO documentation;
- parties participating in or engaging with the WDRM will likely also be involved in other areas of the market, so this approach provides consistency and familiarity; and
- implementation matters are best maintained outside the Guidelines, because the Guidelines are subject to the Rules consultation procedures.

In this way, AEMO considers that its proposal supports administrative efficiency and is consistent with the NEO, as well as the Guideline Principles.

4.2.3. AEMO's conclusion

AEMO considers that the proposed scope of Additional Information balances the inclusion of further information on WDR-related processes in the Guidelines with the benefit of timely development of the initial Guidelines.

AEMO will consider consolidation of additional WDR-related process information into subsequent updates to the Guidelines.

4.3. Requirements for classification of a load as a WDRU

4.3.1. Issue summary and submissions

AEMO may stipulate additional requirements in the Guidelines for the classification of a load as a WDRU (NER 2.3.6(e)(7)) (**Additional Classification Requirements**).

In the Issues Paper, AEMO proposed the Additional Classification Requirements listed in Table 4, which add to the requirements in NER 2.3.6(e), as well as clarify and reflect other NER requirements.

Table 4 Proposed Additional Classification Requirements for classification of a load as a WDRU

Additional Classification Requirement		Rationale
1	5-minute metering must be available at the connection point	To facilitate settlement and dispatch conformance monitoring
2	The connection point must not be classified as an ancillary service load by a different DRSP or Market Customer	NER 2.3.4(d), 2.3.5(e1), 2.3.6(f)
3	The load may not be represented by more than one NMI	NER 2.3.6(m)(1)(i)
4	The load may not be participating in RERT at the time of classification	NER 3.20.3(g)
5	The load may not be spot price exposed	NER 2.3.6(e)(2), 3.8.2A(d)

The Issues Paper asked stakeholders to propose and justify any further Additional Classification Requirements (Question 4.1).

In response:

- VIOTAS and Origin supported the proposed Additional Classification Requirements, with Origin requesting clarification on the inclusion of small business customer loads.
- Enel X:
  - sought clarification in respect of loads with multiple connection points;
  - proposed that the Guidelines should include a deadline for assessing an application to classify a load as a WDRU; and
  - enquired about the classification application fees, including whether fees would be charged on a per load or per application basis.
- Brickworks suggested that five-minute metering should not be required for WDR participation.
- Energy Queensland suggested that further consideration is required in relation to how loads will be controlled from a DNSP perspective, whether the use of baselines would affect the response delivered, and the quantity of data and communications required from DNSPs.

4.3.2. AEMO's assessment

NER 2.3.6(m)(2) provides that a load is a small customer load if the retail customer is a small customer, and has not entered into an agreement with the retailer to treat the load as if it is aggregated with other loads, in accordance with rule 5(2)(a) of the National Electricity Retail Rules (**NERR**). AEMO considers that this definition of small customer load sufficiently explains the ability of small business customer loads to participate in the WDRM.

In response to Enel X's submission:

- AEMO has provided clarification in the draft Guidelines in respect of loads with multiple connection points, being loads with electrical equipment that can be switched between different connection points.
- AEMO has determined to not include a deadline for assessing an application to classify a load as a WDRU in the Guidelines. AEMO will consider including such a deadline in a future update to the Guidelines after having gained experience with the operation of the WDRM.
- AEMO will:
  - determine the various DRSP application fees by 30 June 2021, to be shared through the WDR CG;
  - set the application fees on a cost-recovery basis, as usual; and
  - publish the application fees within its consolidated fee schedule[7], not within the Guidelines.

In response to Brickworks' suggestion, WDRUs, like other scheduled facilities, will operate on a 5-minute dispatch cycle and will be compensated according to 5-minute pool prices. AEMO will be able to perform WDR settlement only in accordance with the settlement equations in NER 3.15.6B with 5-minute metering, which can allocate the WDR quantities to the respective 5-minute prices.

Regarding the matters raised by Energy Queensland:

- the potential for ramping and other restrictions on the participation of aggregated WDR is discussed in section 4.5;

[7] AEMO's fees and charges are available at https://aemo.com.au/about/corporate-governance/energy-market-fees-and-charges.

- dispatch quantities will be estimated based on deviations from estimated baseline quantities, given that baselines are not calculated in real time; and
- WDRU telemetry requirements are discussed in section 4.6.

AEMO has reconsidered its position in respect of spot price exposure since the publication of the Issues Paper, following discussions with Australian Energy Regulator (**AER**) staff. AEMO has amended the Additional Classification Requirement 5 such that the DRSP must declare to AEMO that it will provide an available capacity of zero for the load, if the load is spot price exposed in a trading interval. This will support AEMO's consideration as to whether "the *load* is able to be used to provide *wholesale demand response* in accordance with the *Rules*" (NER 2.3.6(e)(2)). AEMO considers that this amendment provides increased flexibility of WDR participation and more closely aligns with the AEMC's policy position in respect of spot price exposure.[8]

AEMO considers that the:

- Additional Classification Requirement 1 of five-minute metering supports Mandatory Principle 1 of market operation non-distortion; and
- Additional Classification Requirements 2-5, which predominantly clarify and reflect other NER requirements, support Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

4.3.3. AEMO's conclusion

AEMO has determined to make one amendment to the Additional Classification Requirements in the draft Guidelines, replacing the requirement for a load to not be spot price exposed with a requirement for the DRSP to declare to AEMO that it will provide an available capacity of zero for the load, if the load is spot price exposed in a trading interval. AEMO has also determined to include a brief explanation regarding loads with multiple connection points in the draft Guidelines.

4.4. Requirements for aggregation of WDRUs

4.4.1. Issue summary and submissions

AEMO:

- may stipulate additional requirements in the Guidelines for the aggregation of WDRUs to be approved for the purpose of central dispatch (NER 3.8.3(b2)(4)) (**Additional Aggregation Requirements**); and
- has determined that the Guidelines will explain AEMO's approach to assessing the potential impacts of WDRU aggregation on power system security, as noted in section 4.2.

In the Issues Paper, AEMO indicated that:

- no Additional Aggregation Requirements had yet been identified; and
- the Guidelines would describe circumstances in which AEMO may require aggregated WDRUs to be disaggregated, as standard terms and conditions that AEMO may impose when approving aggregations under NER 3.8.3(b3), which may include:
  - changes to power system conditions such that the aggregation may materially affect security (section 4.5); and

[8] AEMC, 11 June 2020, *Rule Determination, National Electricity Amendment (Wholesale Demand Response Mechanism) Rule 2020 / National Electricity Retail Rule (Wholesale Demand Response Mechanism) Rule 2020*, pages 180-182. https://www.aemc.gov.au/sites/default/files/documents/final_determination_-_for_publication.pdf.

– continuing dispatch non-conformance.

The Issues Paper asked stakeholders to propose and justify any further Additional Aggregation Requirements (Question 4.1).

In response, AEMO received no specific submissions. However, Energy Queensland suggested that further consideration was required in relation to how response would be controlled, impacts resulting from the use of baselines, and the quantity of data and communications required from DNSPs.

4.4.2. AEMO's assessment

As outlined in section 4.5 below, AEMO has sought to provide additional clarity in the draft Guidelines regarding its assessment of the power system security impacts of aggregation, in order for the assessment process to be as transparent and predictable as practicable.

AEMO considers that the goals of transparency and predictability would be advanced by also stipulating relevant power system security criteria as conditions for aggregation where these can be specified precisely.

To this end, AEMO has identified two Additional Aggregation Requirements that have been included in the draft Guidelines:

- AEMO may divide a region into multiple load forecasting areas[9] and determine distinct load forecasts for each area, to allow for more accurate management of constraints in common areas of network congestion.[10] AEMO has determined that an aggregation should only include WDRUs within a single load forecasting area, to maintain load forecasting accuracy and mitigate potential security impacts.
- AEMO has determined that an assessment by the relevant DNSP(s) on whether the aggregation has sufficient granularity to manage potential security impacts (**DNSP Endorsement**) should be required where:
  - the application seeks to add one or more WDRUs to an aggregated DUID; and
  - the proposed aggregation includes WDRUs at or behind a single transmission node with an aggregate MRC of 5 MW or greater.

The assessment of power system security impacts and the options on integrating the DNSP Endorsement of the aggregation into the registration process are described further in section 4.5.2.

AEMO considers that the inclusion of the two Additional Aggregation Requirements and the description of standard terms and conditions to be imposed under NER 3.8.3(b3) are consistent with the Guidelines Principles by transparently describing the conditions for initial and ongoing aggregation of WDRUs. This proposal is consistent with the need to maximise the effectiveness of the WDRM at least cost for consumers.

4.4.3. AEMO's conclusion

Accordingly, AEMO has determined to:

- include the two Additional Aggregation Requirements described in section 4.4.2; and

[9] These load forecasting areas are specified in the *Power System Operating Procedure – Load Forecasting* (SO_OP_3710), available at https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures.

[10] At the time of publishing this Draft Report, AEMO has divided Queensland into three load forecasting areas and Tasmania into two load forecasting areas. The New South Wales, South Australia and Victoria regions each consist of a single load forecasting area.

- describe standard terms and conditions to be imposed upon approving an aggregation, which include a description of circumstances in which AEMO will require the aggregation to be disaggregated.

4.5. Assessment of power system security impacts of WDRU aggregation

4.5.1. Issue summary and submissions

AEMO is required under NER 3.8.3(b2)(2) to be satisfied that power system security will not be materially affected by the proposed aggregation, when assessing an aggregation application.

AEMO proposed in the Issues Paper to describe its assessment of power system security implications in the Guidelines, beyond the minimum required scope of the Guidelines under NER 3.10.1, including:

- the triggers for assessment, which would be where the DUID-Level MRC of the proposed aggregation equals or exceeds 5 MW, or the aggregation is located in a "weaker area of the power system";
- the mechanisms to provide information to DRSPs about areas of the power system where WDRU aggregation may affect power system security, probably including the Integrated System Plan, Transmission Annual Planning Reports, and Distribution Annual Planning Reports; and
- the matters that AEMO will consider when assessing the power system security impacts of aggregation, including power quality, voltage stability and the potential need for constraints to manage network congestion.

The Issues Paper asked stakeholders to propose further information that could be included in the Guidelines in relation to AEMO's assessment of the potential power system security impacts of WDRU aggregation (Question 4.2).

In response:

- Origin supported AEMO's proposal, suggesting that the Guidelines should describe the potential changes in power system conditions that will necessitate disaggregation, including whether this may be limited to certain types of aggregations, perhaps above a certain DUID-Level MRC threshold.
- Brickworks and PIAC suggested that the Guidelines should define terms such as 'weaker areas of the power system' and 'material effect', with applicable metrics.
- Enel X and PIAC expressed concern about AEMO's proposals:
  - cautioning against the imposition of requirements on DRSPs to address broader power system challenges that are not specifically caused by WDR participation;
  - suggesting that setting the assessment triggers as low as 5 MW could present a barrier to entry; and
  - recommending that the Guidelines should provide as much information as possible to make the power system security assessment as transparent and predictable for DRSPs as possible.
- Enel X noted that customers can choose to be spot price exposed through their retail contracts already, and could shift load in response to spot prices in the same way as they would under the WDRM, but without obligations to provide AEMO with visibility or controllability.

Energy Queensland indicated that:

- further information was needed to address potential voltage issues in distribution networks as a result of the coordinated and synchronised action of multiple loads through the WDRM; and
- DNSPs would require information to assess potential risks to the distribution network and any operating envelopes that may need to apply, including:

- the NMIs that are proposed to be aggregated;
- the DUID-Level MRC and potential duration of dispatch; and
- the ramp rate.

4.5.2. AEMO's assessment

AEMO's responsibilities to maintain power system security require AEMO to:

- dispatch scheduled facilities within the dynamic nature of the technical envelope (NER 4.3.1(i)); and
- determine any potential constraint on the dispatch of scheduled facilities (NER 4.3.1(j)).

These responsibilities apply for the entirety of the national grid, including transmission and distribution networks.

Accordingly, AEMO must consider the potential impact of WDR dispatch on system security and the constraints which may need to be applied to WDRUs to keep the power system operating within the technical envelope.

The WDRM allows for the aggregation of multiple WDRUs that may be dispersed within a region, unlike a generating system which is at a specific location in the power system. AEMO may need to dispatch WDRUs on only one side of a network constraint, to manage network congestion within a region. However, the automated nature of the central dispatch process means AEMO cannot do so with certainty if a DUID includes WDRUs on both sides of the network constraint.

AEMO acknowledges that incentives differ for DRSPs and generators in respect of market registration and participation in central dispatch. DRSPs must participate in central dispatch in order to receive payment under the WDRM, whereas a generator may prefer to not register a small generating system in order to avoid any related costs, unless it wishes to provide frequency control ancillary services (**FCAS**).

In practice:

- AEMO provides standing exemptions from registration for generators under 5 MW, as these systems "when fully connected to a *transmission* or *distribution system* are unlikely to have such an impact or cause a material degradation in the quality of *supply* to other *Network Users*".[11]
- AEMO will only consider granting an exemption above 5 MW where "the operation of the *generating system* will not adversely impact *power system security*".[12]
- The potential power system security impacts of a generating system are separately reviewed by the relevant NSP through the connections process.

AEMO must apply similar considerations in respect of the potential impact of WDRUs on power system security. Consequently, AEMO considers that aggregations of WDRUs with a DUID-Level MRC:

- below 5 MW are unlikely to significantly affect power system security; and
- of 5 MW or greater will require assessment of potential power system security impacts.

AEMO agrees with submitters regarding the need for clear definitions to allow the process for assessing the power system security impacts of aggregation to be as transparent and predictable as possible. Accordingly:

- AEMO has avoided the use of the imprecise phrase "weaker areas of the power system". Instead AEMO would assess a proposed aggregation smaller than 5 MW where one or more WDRUs is

[11] AEMO, *Guide to Generator Exemptions and Classification of Generating Units*, section 3.2.1, available at https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration/exemption-from-registering-as-a-generator-in-the-nem.

[12] Ibid, section 3.3.2.

located in a congested area of the power system where existing and committed scheduled plant needs to be curtailed to manage power system conditions, such as voltage, transient or thermal limits. AEMO considers that this is likely to encompass all constraints that bind, or are forecast to bind, for more than five hours per year.

- As noted in section 4.4.2, AEMO has stipulated that an aggregation may only include loads within a single load forecasting area specified in the Power System Operating Procedure – Load Forecasting (SO_OP_3710).
- AEMO has explained the basis of its decision to approve an aggregation unless:
  - the DNSP Endorsement (explained below), where required, is inconsistent with the application to aggregate, for example, in circumstances of a mismatch between the WDRUs to be aggregated;
  - the DNSP Endorsement, where required, is no longer current; or
  - AEMO determines that it must represent the WDRUs within the proposed aggregation as two or more DUIDs in constraints used in central dispatch in order to maintain power system security. AEMO considers that this is likely if the proposed aggregation includes WDRUs on either side of a constraint that binds, or is expected to bind, for more than five hours per year.
- AEMO has described in the draft Guidelines the mechanisms which provide DRSPs with information about congested system areas which may affect WDRU aggregation, including the Integrated System Plan, Congestion Information Resource, Transmission Annual Planning Reports and Distribution Annual Planning Reports.
- AEMO has included a requirement that where AEMO rejects an application to aggregate WDRUs, AEMO will advise the applicant of possible alternative aggregations that AEMO considers would not materially affect power system security.

DNSP Endorsement

AEMO accepts Energy Queensland's concern regarding the risk of voltage issues in distribution networks, which may arise due to the synchronised aggregate response of multiple WDRUs in a localised area of a distribution system. AEMO also recognises that the central scheduling of all WDRUs (individual or aggregated within multiple DUIDs) in a localised area the network, should reflect network limitations such that the risk is managed in an efficient an equitable manner across all providers.

AEMO considers that DNSPs are best placed to assess these risks as they relate to the aggregation of WDRUs for the purpose of central dispatch, and is considering options to facilitate this assessment within, or alongside, AEMO's assessment of an application to aggregate WDRUs. The circumstances in which the DNSP assessment would be required are described in section 4.4.2.

AEMO considers that a DNSP's assessment of a proposed aggregation would result in an endorsement or rejection of the proposed aggregation, as well as advice of any restrictions that must be imposed on the aggregation, such as ramp rate limits, to ensure that the dispatch of WDRUs will not infringe the technical envelope.

AEMO presumes that a DNSP would only reject a proposed aggregation where it considered that the WDRUs within the proposed aggregation need to be represented as two or more DUIDs in constraints used in central dispatch. If this occurred, AEMO also presumes that the DNSP would advise AEMO of any constraints to be applied to the DUIDs in the central dispatch process, so that AEMO may meet its obligations under NER 4.3.1(i) and (j). This is consistent with the requirement in NER 4.3.4(a) for NSPs to "co-operate with and assist *AEMO* in the proper discharge of the *AEMO power system security responsibilities*."

AEMO has considered the following options on how such an assessment of a proposed WDRU aggregation by a DNSP could interact with AEMO's process to accept or reject an application to aggregate WDRUs:

- DRSP should be required to consult with the DNSP(s) with the view to obtaining the DNSP Endorsement as a condition of aggregation (**Option 1**);
- AEMO should, on receipt of an application to aggregate WDRUs, provide the relevant information to the DNSP to conduct its assessment, with DNSP advice informing AEMO's decision on whether to approve or reject the application (**Option 2**); and
- AEMO should assess an application in the absence of DNSP advice, but then subsequently require disaggregation, if a DNSP raises an objection on power system security grounds (**Option 3**).

AEMO recognises that each of these options has shortcomings:

- Option 1 would increase the time required for the aggregation process due to the need to obtain the DNSP Endorsement before applying to AEMO.
- Option 2 may be costly due to the need to develop a robust DNSP assessment framework that could be accommodated within AEMO's obligation, under NER 3.8.3(e), to reply to the DRSP within 20 business days of receiving the application.
- Option 3 would increase uncertainty for DRSPs and potential security risks in the period after approving the aggregation.

The draft Guidelines align with Option 1, requiring a DRSP to provide evidence of DNSP Endorsement with an application to aggregate WDRUs where:

- the application would add one or more WDRUs to an aggregated DUID (that is, DNSP Endorsement would not be required to remove a WDRU from an existing aggregation); and
- the application, if approved, would result in the aggregation of WDRUs at or behind a single transmission node with an aggregate NMI-Level MRC of 5 MW or greater.

However, AEMO recognises that there is uncertainty around the potential duration of DNSP assessments, and the transparency of such an assessment process. Consequently, AEMO is considering allowing a DRSP to apply to aggregate WDRUs without a DNSP Endorsement, where it can demonstrate that it has sought DNSP Endorsement but has not received a decisive response after a specified period of time. AEMO has not provided this allowance in the draft Guidelines.

AEMO also recognises that the inclusion of a DNSP Endorsement process will not prevent voltage issues arising from the synchronised action of multiple WDRUs. Such issues may arise due to the synchronised response of multiple DUIDs, potentially classified by multiple DRSPs. AEMO considers that such risks are best addressed through the provision of information to DNSPs, as explained in section 4.11, which would enable DNSPs to advise AEMO of any necessary constraints on the combined dispatch of multiple WDR DUIDs.

AEMO seeks stakeholder views on the options for DNSPs to review proposed WDRU aggregations.

Questions for DNSPs

- Question 4.1: Under what circumstances do DNSPs consider that an aggregation of WDRUs would need to be rejected due to security risks in distribution networks, given that risks could equally arise from the synchronised action of multiple WDR DUIDs?
- Question 4.2: Aside from the endorsement/rejection of a proposed aggregation of WDRUs, and advice of any restrictions that must be imposed on the aggregation in central dispatch, what further outputs would be provided from a DNSP's assessment of a proposed aggregation?
- Question 4.3: Do DNSPs consider that they could commit to providing a DNSP Endorsement (or rejecting a request) within a specific period of time? If so, what do DNSPs consider to be a reasonable timeframe?
- Question 4.4: How do DNSPs consider that they could provide transparency around their assessment of proposed WDRU aggregations?
- Question 4.5: Do DNSPs consider that the proposed threshold of an aggregate NMI-Level MRC of 5 MW or greater is appropriate for requiring a DNSP Endorsement? If not, please provide justification for an alternative threshold.

Questions for stakeholders

- Question 4.6: Do stakeholders have particular concerns regarding the DNSP Endorsement process in the draft Guidelines? If so, what mitigation measures or alternative approaches may address these concerns?
- Question 4.7: What do stakeholders consider to be a reasonable timeframe for a DNSP assessment process, after which the requirement to provide the DNSP Endorsement with an application may be waived?

Summary

Subject to further consideration and consultation on the DNSP Endorsement process, AEMO considers that the process described in the draft Guidelines satisfies the Guidelines Principles by appropriately balancing Mandatory Principle 1 of market operation non-distortion and Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

4.5.3. AEMO's conclusion

AEMO has:

- subject to further consideration and consultation, determined to augment the process for assessing the security impacts of aggregation which was proposed in the Issues Paper with the requirement for the DNSP Endorsement under specified circumstances; and
- provided increased clarity in the draft Guidelines about:
  - the geographical restrictions that will apply to aggregations;
  - the conditions in which AEMO would need to assess aggregations smaller than 5 MW; and
  - the conditions that would cause AEMO to reject a proposed aggregation on security grounds.

4.6. WDRU telemetry and communications requirements

4.6.1. Issue summary and submissions

AEMO must be reasonably satisfied that a DRSP has adequate communications and/or telemetry in place to support the issuing of dispatch instructions, for AEMO to approve the classification of a load as a WDRU (NER 2.3.6(e)(4)).

In the Issues Paper, AEMO proposed that these requirements would be consistent with those that apply for generating units to the extent practicable, with the Guidelines to describe:

- that telemetry would be required for:
  - an individual WDRU where the NMI-Level MRC is 5 MW or greater;
  - an aggregation of WDRUs where the DUID-Level MRC is 5 MW or greater, with data to be provided at the aggregated level (not for the individual WDRUs);
  - WDRUs that a DRSP has classified within multiple DUIDs at or behind a single transmission node (or a group of neighbouring transmission nodes if deemed necessary due to power system conditions), where the aggregate MRC is 5 MW or greater; and
  - individual or aggregated WDRUs where the NMI-Level MRC or DUID-Level MRC, as applicable, is below the 5 MW threshold, in weaker areas of the power system where AEMO considers that telemetry is necessary to support the maintenance of power system security;
- the mechanisms through which information is provided to DRSPs about weaker areas of the power system that may affect WDRU aggregation, which may include the Integrated System Plan, Transmission Annual Planning Reports, Distribution Annual Planning Reports and the Congestion Information Resource;
- the processes for DRSPs to request exemption from the requirement to provide telemetry data and for AEMO to assess such requests; and
- that telemetry data would represent real-time estimates of the quantity of WDR that is being provided by the WDRU (individual or aggregated, as applicable).

Further, AEMO proposed that the Guidelines would refer to the Power System Data Communications Standard (**Standard**).[13] The Standard sets out technical requirements related to technology interfaces, data quality, reliability and redundancy of data supply, as well as security measures. AEMO noted that it is preparing to commence consultation on amendments to the Standard and is targeting finalisation of these amendments by mid-2021.

The Issues Paper asked stakeholders to propose further information that could be included in the Guidelines in relation to the process for seeking exemption from the requirement to provide telemetry data (Question 5.1).

In response:

- Origin was broadly supportive of AEMO's proposal, suggesting that the Guidelines should also specify the minimum set of data points that would be required.
- VIOTAS considered that AEMO should require telemetry for all WDR, to ensure clarity of the Guidelines and equity between DRSPs, as well as to avoid the need to establish inefficient assessment processes.
- Brickworks, Enel X and PIAC all opposed the proposed requirements:
  - Enel X and PIAC observed that WDR participation is different from generation and cautioned against applying the same telemetry requirements.
  - Brickworks suggested that the case for requiring telemetry had not been made, noting that customers can currently vary their consumption without notifying AEMO. Further, AEMO should grant an exemption where the cost of providing telemetry was unreasonable, either based on the profitability of the business or whether the cost would prevent the customer from participating in the WDRM.

[13] Available at https://aemo.com.au/en/energy-systems/market-it-systems/nem-guides/power-systems.

- Enel X suggested that the rationale for requiring telemetry was unclear and indicated that some overseas markets have opted to not require telemetry from demand response providers. Further, AEMO should provide a clear explanation of the data that it requires from DRSPs to fulfil its functions, as well as the standards for data provision.
- Enel X suggested that the traditional SCADA connection was costly and likely to be a barrier to entry. Alternative interfaces are available that could meet the requirement in the NER for a DRSP to have "adequate communications and/or telemetry in place to support the issuing of dispatch instructions".
- Enel X indicated that, until AEMO completed its review of the Standard, it was difficult for DRSPs to assess the costs of participation in the WDRM, and this uncertainty was likely to delay the entry of DRSPs.
- More broadly, Enel X suggested that the issue of real-time telemetry would need to be addressed more fully if the WDRM was extended to small customers in future, including as part of the long-term transition to a two-sided market.

4.6.2. AEMO's assessment

AEMO has taken a 'first principles' approach to reassess its proposal for telemetry requirements in the Issues Paper, in light of the opposing submissions from Brickworks, Enel X and PIAC.

To perform its power system operation functions, AEMO uses a combination of real-time measurements and estimates to provide it with the necessary operational awareness of conditions in the power system. Where AEMO requires a particular data stream for power system operation, AEMO will require real-time telemetry data to be provided where:

- there is no suitable estimate available that can be used; or
- the real-time measurement is expected to be more accurate or provide greater operational awareness than the available estimate, and this improvement is of critical importance for power system operation.

In the case of WDR, AEMO will require data on the quantity of WDR being provided by each DUID in the operational forecasting and central dispatch processes. AEMO considers that there are two potential data sources:

- AEMO could use the dispatch instruction as an estimate of the quantity of WDR being provided. While this is relatively simple, it will be inaccurate where a DRSP deviates from its dispatch instruction.
- Alternatively, AEMO could require the DRSP to provide a real-time estimate of the quantity of WDR that it is currently providing relative to its pre-event consumption.

AEMO considers that there are two conditions in which real-time telemetry data from DRSPs would improve upon the assumption of perfect adherence to a dispatch instruction, and that this improvement is important for power system operation:

- Operational forecasting at regional level – AEMO considers that the application of regional thresholds for non-telemetered WDR is important to limit the risk of demand forecast errors resulting from erroneous real-time estimates of delivered WDR (as explained in section 4.7.2).
- Management of localised congestion – Even though a regional threshold for non-telemetered WDR may not have been reached, more accurate real-time observations of WDR dispatch performance may be critical where WDRUs or aggregations of WDRUs need to be represented in constraints in the central dispatch process. In these circumstances, undetected WDR dispatch error may result in a constraint being inadvertently breached, or may require more conservative limits to be set in the constraint to avoid breaches.

AEMO's practice has been to provide standing exemptions from registration for generators under 5 MW due to the low likelihood of negative impacts on the power system or on the quality of supply to other network users (as noted in section 4.5.2). However, AEMO will only consider exempting a generating system from registration where it will not adversely impact power system security.

AEMO must apply similar considerations in respect of the potential impact of WDRUs on power system security, and the resulting need for real-time telemetry. Consequently, the draft Guidelines provide that, where a regional threshold for non-telemetered WDR has not been reached, telemetry will be required in the following situations:

- an individual WDRU where the NMI-Level MRC is 5 MW or greater;
- WDRUs that a DRSP has classified at or behind a single transmission node (or a group of neighbouring transmission nodes if deemed necessary due to power system conditions), where the aggregate MRC is 5 MW or greater;[14] or
- individual or aggregated WDRUs where the NMI-Level MRC or DUID-Level MRC, as applicable, is below the 5 MW threshold, in a congested area of the power system where:
  - existing scheduled plant needs to be curtailed to manage power system conditions (such as voltage, transient or thermal limits) and
  - AEMO considers that telemetry is necessary to support the maintenance of power system security.[15]

However, AEMO has revised its proposed position in the Issues Paper in respect of aggregations of WDRUs with a DUID-Level MRC of 5 MW or greater that do not meet the criteria above. The draft Guidelines do not require telemetry to be provided for such an aggregation because:

- AEMO and the relevant DNSP(s) (in specific circumstances) will have assessed the aggregation and been satisfied that it will not materially impact power system security; and
- the aggregation is unlikely to be represented in constraints in central dispatch.

AEMO considers that this revised position:

- accounts for a key difference between WDR, specifically geographically dispersed aggregations of WDRUs, and generation; and
- reduces the potential perverse incentive for DRSPs to limit aggregations of WDRUs to below 5 MW in order to avoid the potential cost of telemetry requirements.

As proposed in the Issues Paper, the draft Guidelines provide for a process whereby a DRSP may request an exemption from the requirement to provide telemetry data and describe the process for AEMO to assess such a request. AEMO may only grant an exemption where it considers that the provision of telemetry data is not necessary for power system operation.

AEMO acknowledges that a DRSP will incur costs to provide telemetry data, where required.

However, AEMO disagrees with Brickworks' suggestion that exemptions should be granted where the cost of telemetry would prevent the customer from participating in the WDRM. Where AEMO considers that it is unable to exempt a DRSP from providing telemetry due to power system operation requirements, the implication is that power system security could be impacted if AEMO, in the absence of the telemetry data, would be unaware of dispatch deviations.

However, AEMO also disagrees with VIOTAS's suggestion that it should require telemetry for all WDR. AEMO considers that it would inefficient and a barrier to entry to require telemetry from smaller WDRUs or

[14] This applies irrespective of the aggregation status of the WDRUs.

[15] The draft Guidelines describe the mechanisms through which DRSPs are provided with information about congested areas of the power system, as noted in section 4.5.2.

aggregations for which the real-time telemetry data would provide negligible benefit and/or is not considered critical for power system operation.

As proposed in the Issues Paper, the draft Guidelines refer to the Standard. AEMO intends to review and consult on the Standard in 2021 to allow for additional, lower cost interfaces and to update existing requirements.

AEMO agrees with Origin regarding the specification of the minimum set of data points in the Guidelines. The Standard sets requirements for the provision of 'Dispatch Data', but does not specify what comprises Dispatch Data. Consequently, the draft Guidelines describe the required data channel, being real-time estimates of the quantity of WDR that is being provided by the WDRU (individual or aggregated, as applicable), as well as optional data channels.

AEMO considers that the telemetry requirements described in the draft Guidelines, which have been relaxed from the proposed requirements in the Issues Paper, satisfy the Guidelines Principles by supporting:

- the use of telemetry data in circumstances where it will provide a material benefit to maintaining adequate power system operation (Additional Principle 1) and avoiding distortions in the market (Mandatory Principle 1); and
- Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost, by limiting the need for telemetry data to those circumstances where it will provide a material benefit.

4.6.3. AEMO's conclusion

AEMO has determined to reduce the range of circumstances in which telemetry would be required in respect of WDRUs – relative to the Issues Paper – by removing the standard requirement for telemetry in respect of geographically dispersed aggregations of WDRUs with a DUID-Level MRC of 5 MW or greater.

4.7. Regional thresholds for increased visibility of WDRUs

4.7.1. Issue summary and submissions

AEMO may determine regional thresholds for the total quantity of WDR in each region above which AEMO will impose additional or alternative telemetry and communications equipment requirements for any load in the region seeking to be classified as a WDRU after the threshold is reached (NER 3.10.1(c)).

In the Issues Paper, AEMO proposed that it would initially set conservative values for the regional thresholds for non-telemetered WDR, but would allow these to be revised over time, based on observations of WDR dispatch performance and assessments of the impact on forecasting risk and uncertainty. To achieve this, AEMO proposed that the Guidelines would describe:

- the methodology for setting regional thresholds, to include one or more parameters linked to observed dispatch performance; and
- the triggers for AEMO to update the published regional thresholds, which may be periodic and/or follow a specified number of dispatch events.

In this way, AEMO anticipated that it would be able to revise the threshold values as more information on WDR dispatch performance becomes available, in accordance with the methodology in the Guidelines, without needing to amend the Guidelines themselves.

AEMO proposed that the methodology described in the Guidelines would initially result in regional thresholds that are approximately one per cent of the three-year historical maximum (scheduled) demand in intervals with prices above $300/MWh.

The Issues Paper asked stakeholders to suggest and justify triggers for updating parameters in the methodology, which would lead to updated thresholds (Question 5.2).

In response:

- Origin expressed support for periodic updates to regional thresholds based on assessment of observed dispatch performance, and suggested that the Guidelines should indicate how the threshold would be applied in respect of concurrent applications that would, in combination, breach a regional threshold.
- However, Enel X and PIAC considered that the case for regional thresholds had not been made, with Enel X expressing concern that the example in Figure 1 of the Issues Paper overstated the risk of dispatch errors. Enel X and PIAC also considered that the proposed initial thresholds were too conservative and would restrict the development of the WDRM, create a first-mover advantage and impose unnecessary costs. Rather than commencing with conservative initial thresholds, Enel X proposed that AEMO should observe dispatch error trends and address issues should they arise.

4.7.2. AEMO's assessment

AEMO's operational forecasting processes rely on real-time input data feeds which include:

- electricity demand, based on SCADA readings from metered generation and loads;
- weather conditions, both observed and forecasted; and
- intermittent generation, both actual and forecasted.

Uncertainty in these inputs can reduce the accuracy of operational forecasts, consequently affecting real-time operations and power system security. Figure 1 explains the way in which errors in the dispatch of non-telemetered WDR are likely to be misattributed in AEMO's operational forecasting process and will likely feed into subsequent demand forecast deviations.

Figure 1 Impact of undetected WDR dispatch errors on AEMO's operational forecasting

1.	At the beginning of a dispatch interval $\boldsymbol{t}$ in a NEM region, some MW dispatch target $\boldsymbol{WDR_{tgt}}$ is assigned to WDRUs.
2.	At the end of the interval, some amount $\boldsymbol{WDR_{act}}$ of demand response is delivered in total, resulting in a dispatch error $\boldsymbol{Err_t = WDR_{act} - WDR_{tgt}}$.
3.	The observed load for the region, denoted $\boldsymbol{Load_t}$, reflects the actual demand response $\boldsymbol{WDR_{act}}$, so to reconstitute the ex-ante underlying demand $\boldsymbol{Demand_t}$, we need to add $\boldsymbol{WDR_{act}}$ to $\boldsymbol{Load_t}$.
4.	Since $\boldsymbol{WDR_{act}}$ is not available at short-term horizons due to lack of real-time telemetry, we assume $\boldsymbol{Err_t = 0}$ and approximate $\boldsymbol{Demand_t}$ as $\boldsymbol{Load_t + WDR_{tgt}}$.
5.	The measure of $\boldsymbol{Demand_t}$ will thus be imprecise to the extent that dispatch errors differ from 0 i.e. $\boldsymbol{Err_t \neq 0}$.
6.	This affects the accuracy of future forecasts, since AEMO's forecasting models use auto-regressive terms e.g. $\boldsymbol{Demand_{t+1} = f(Demand_t, \dots)}$ and these terms are increasingly important at shorter-term horizons (e.g. 5 minutes).

Demand forecast errors can affect AEMO's ability to balance supply and demand in the NEM and may increase the requirements for regulation and contingency frequency control ancillary services (FCAS), affect constraint implementation, and reduce market efficiency due to increased forecast uncertainty.

The risk of such demand forecast errors resulting from erroneous real-time estimates of delivered WDR can be limited by thresholds on the quantity of non-telemetered WDR.

Therefore, it is important to manage any sources of uncertainty and assess their impact on forecasting accuracy. One way to assess the impact is to measure, ex post, how the uncertainty in each individual input contributes to observed forecast deviations. Where an input's marginal contribution is materially significant, AEMO will consider the available options to mitigate uncertainty.

Consequently, AEMO considers that the specification of regional thresholds for non-telemetered WDR is necessary and consistent with the Guidelines Principles by:

- limiting the potential for market distortion resulting from demand forecast errors;
- reducing the risk of additional costs for consumers that may arise from increased FCAS requirements, increased conservatism in constraints and reduced market efficiency; and
- supporting power system operation.

AEMO acknowledges that the specification of regional thresholds could create a first-mover advantage situation, as indicated by Enel X and PIAC, as an unavoidable consequence.

AEMO's regional threshold methodology and threshold revision approach:

- aim to balance the needs of the market with the secure operation of the NEM; and
- offer a pathway to scale the regional thresholds in a gradual, sustainable manner to include more participants over time.

The methodology for determining regional thresholds set out in the draft Guidelines is consistent with the high-level approach proposed in the Issues Paper, being to begin with a set of initially conservative values and to establish a periodic revision mechanism that will allow the thresholds to change over time, as more data about dispatch performance becomes available. The methodology is described in greater detail in the following sections.

Initial regional thresholds

To set the initial regional thresholds, AEMO has considered how the amount of RERT delivered (in MWh) compared to the RERT activation targets, in the summer of 2019/2020. For each of the five recorded activation events, the observed deviations from the target were -7%, 25%, 12%, -16% and 17%.[16,17] These percentages represent the average deviation across several hours of RERT activation, which masks any variability that would have been observed at a 5-minute level.

AEMO notes that there are substantial differences between the demand response within the RERT and the WDRM (such as customer type, incentives and dispatch notice). Nonetheless, AEMO considers that this performance data provides a useful reference point for the WDRM.

In light of this variability in RERT dispatch performance, AEMO will specify conservative initial regional thresholds as proposed in the Issues Paper, set at approximately one per cent of the three-year historical maximum (scheduled) demand in intervals with prices above $300/MWh, during the period from Q3 2017 to Q3 2020. These thresholds are shown in Table 5, along with the maximum and minimum demand levels observed in each region in intervals with prices above $300/MWh.

[16] RERT Quarterly Report Q4 2019, page 8, available at https://aemo.com.au/-/media/files/electricity/nem/emergency_management/rert/2020/rert-quarterly-report-q4-2019.pdf?la=en

[17] RERT Quarterly Report Q1 2020, pages 18, 23, 27 and 30, available at https://aemo.com.au/-/media/files/electricity/nem/emergency_management/rert/2020/rert-quarterly-report-q1-2020.pdf?la=en

Table 5 Initial regional thresholds for non-telemetered WDR

Region	NSW	QLD	SA	TAS	VIC
Initial threshold (MW)	140	100	32	17	95
Maximum demand (MW) (Threshold %)	13,814 (1.0)	9,862 (1.0)	3,125 (1.0)	1,684 (1.0)	9,613 (1.0)
Minimum demand (MW) (Threshold %)	6,129 (2.3)	5,145 (1.9)	596 (5.4)	766 (2.2)	3,591 (2.6)

These initial regional thresholds are designed to balance the needs to:

- allow for a sufficiently large and diverse sample of initial WDRUs without real-time telemetry; and
- manage potential system security risks.

AEMO has not specified these initial regional thresholds in the draft Guidelines. Instead, they will be published on AEMO's website and will be the initial values of $RT_{current}$ in the threshold revision formula described below.

AEMO acknowledges the concerns expressed by Enel X and PIAC regarding conservatism of these initial regional thresholds. However, AEMO considers that:

- this conservatism is warranted given the limited representative dispatch data available; and
- the threshold revision methodology described below will allow for the thresholds to adjust over time to reflect observed dispatch performance.

Revision triggers

AEMO must publish information monthly about progress towards reaching the regional thresholds (NER 3.10.1(d)). AEMO considers that it will be efficient to link updates to regional thresholds with this monthly cycle.

The draft Guidelines specify that:

- AEMO will revise the regional threshold in a region if:
  - the current regional threshold has applied for at least three months;
  - since the last revision, WDRUs without real-time telemetry have been dispatched in the region in at least 50 dispatch intervals, to a level that is at least 25 per cent of the current regional threshold; and
  - WDRUs without real-time telemetry have been dispatched in the region in at least 100 dispatch intervals, to a level that is at least 25 per cent of the current regional threshold.
- AEMO may pause revisions to one or more regional thresholds where:
  - AEMO initiates an amendment to the Guidelines that would be expected to result in one or more regional thresholds being set at a value that is lower than the current thresholds; or
  - following a lowering of a regional threshold, the aggregate of the NMI-Level MRC of WDRUs without real-time telemetry in that region exceeds the new threshold and the methodology would result in a further lowering of the threshold.[18] AEMO considers that this approach will reduce the potential for an anomalous dispatch event with high dispatch error to lead to multiple downward revisions of the threshold.

[18] Upward revisions to the regional threshold will be permitted as usual under these circumstances.

Threshold revision approach

The threshold revision methodology that has been specified in the draft Guidelines allows the regional thresholds to scale and adjust over time, based on observed dispatch performance, without requiring an update to the Guidelines. The methodology for revising the threshold for a region works as follows:

- AEMO will determine and publish a value of Err_{max} for the region, being the maximum error tolerance in the measure of reconstituted (underlying) demand at which forecasting accuracy (in dispatch and pre-dispatch) is not materially affected.[19]
- AEMO will analyse the dispatch error in all dispatch intervals within the most recent 12-month period for which settlement has occurred, in which WDRUs without real-time telemetry have been dispatched in the region to a level that is at least 25 per cent of the current regional threshold (**Qualifying Intervals**). If there are fewer than 100 Qualifying Intervals in the past year, then the most recent 100 Qualifying Intervals will be used.
- For each Qualifying Interval, AEMO will scale the observed dispatch error of WDRUs without real-time telemetry, multiplying it by the ratio between the current regional threshold $RT_{current}$ and the aggregate quantity of WDRUs without real-time telemetry dispatched in the trading interval.
- AEMO will determine $SE_t^{(99)}$, being the value that is the 99th percentile of the scaled dispatch error for non-telemetered WDRUs in the qualifying intervals. This value will represent the level of dispatch error that, after scaling, would exceed Err_{max} less than one per cent of the time.
- AEMO will determine the revised regional threshold RT_{new} by multiplying the current regional threshold $RT_{current}$ by Err_{max} divided by $SE_t^{(99)}$, but will cap the change in the regional threshold at 10 per cent of $RT_{current}$.

This revision methodology allows the thresholds to move up and down in line with observed dispatch performance of WDRUs without real-time telemetry. However, AEMO acknowledges the need for caution when extrapolating observations of a (potentially) small sample of WDRUs to a larger sample that could participate under increased thresholds, particularly as new WDRUs may have different characteristics. Accordingly, the potential adjustment to the threshold is capped at 10 per cent in each revision.

Application of the regional threshold

AEMO agrees with Origin's suggestion that there is merit in the Guidelines providing clarity around how the regional thresholds are applied.

AEMO has specified in section 3.1 of the draft Guidelines that:

- AEMO will consider the contribution of new applications to classify loads as WDRUs towards meeting or exceeding the regional threshold in the order in which they were received; and
- where a DRSP concurrently applies to classify multiple loads as WDRUs that would, in aggregate, cause a regional threshold to be met or exceeded, telemetry will be required for all WDRUs in the application, unless AEMO and the DRSP reach agreement on an alternative arrangement that ensures that the regional threshold is not met or exceeded. Such an agreement may include the withdrawal of some loads from the application, changes to the NMI-Level MRC values to apply to the WDRUs, or the provision of telemetry for some or all of the WDRUs.

[19] Currently, AEMO has forecast error thresholds in place for pre-dispatch i.e. 30-minute trading interval horizon (see Table 5 in https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Power_System_Ops/Procedures/SO_OP_3710---Load-Forecasting.pdf). Similarly, AEMO will determine error thresholds for 5-minute dispatch horizons, which will then be used to derive Err_{max}. Given that forecasts are expected and required to be significantly more accurate at shorter horizons, the 5-minute horizon thresholds could be 16-40% of those currently set at the 30-minute level.

The draft Guidelines only apply the regional threshold at the time of classifying loads as WDRUs. AEMO will not seek to retrospectively apply telemetry requirements to existing WDRUs if a regional threshold falls to a value that is lower than the current capacity of WDRUs in the region.

Summary

AEMO considers that its methodology for the determination and application of regional thresholds for non-telemetered WDR is consistent with:

- Mandatory Principle 1, by limiting the potential for market distortion resulting from demand forecast errors;
- Mandatory Principle 2, by:
  - reducing the risk of additional costs for consumers that may arise from increased FCAS requirements, increased conservatism in constraints and reduced market efficiency;
  - avoiding the retrospective imposition of additional telemetry costs on DRSPs where a regional threshold is reduced; and
  - ensuring costs are commensurate to the resulting risks and benefits, by scaling the need for telemetry according to the magnitude of the observed dispatch error; and
- Additional Principle 1, by ensuring that telemetry data is available where necessary to support power system operation.

4.7.3. AEMO's conclusion

As proposed in the Issues Paper, AEMO has determined to:

- set conservative initial regional thresholds for non-telemetered WDR; and
- describe the methodology in the Guidelines for adjusting the regional thresholds periodically based on observed dispatch performance.

4.8. Baseline methodology development process

4.8.1. Issue summary and submissions

NER 3.10.3 allows AEMO to develop additional BMs, which must be published in a register of BMs and baseline settings. The development of a new BM may be triggered by a proposal from a Registered Participant, or may be initiated by AEMO. The development of any additional BM will involve the implementation of IT system changes, with time and cost considerations.

The Issues Paper proposed that AEMO's decision to implement a new BM would consider:

- the need for consistent results to be achievable when different parties calculate a baseline for a WDRU using the approved BM/settings and the same set of metering data (consistent with NER 3.10.3(c)); and
- AEMO's assessment of the relative costs and benefits of developing the new BM, recognising that any new BM will need to be implemented in AEMO's systems.

Further, the Issues Paper described AEMO's proposed process for development of new BMs, which included:

- an application process through which a proponent would provide AEMO with a detailed outline of the proposed BM calculation and any related baseline settings, and evidence of benefits that may be realised through the introduction of the BM;

- estimation of implementation time and cost, in recognition that these may vary depending on the complexity of a proposed BM and its similarity to any existing BMs;
- flexible timeframes to allow for sufficient time for estimation of implementation time and cost, with obligations on AEMO to provide advice to the proponent and other stakeholders (as applicable) on the assessment timeframe;
- a requirement for AEMO to publish a market notice advising that a new BM has been proposed, AEMO's draft position and estimated implementation cost/schedule, followed by a consultation period of 20 business days for stakeholders to provide feedback; and
- a requirement for AEMO to publish its final decision within 20 business days of submissions closing.

The Issues Paper asked stakeholders for their views on the proposed process, including whether it strikes an appropriate balance between flexibility and prudent management of implementation cost and time (Question 6.1). It also asked for stakeholders to nominate any further information on the BM development process that they considered should be included in the Guidelines (Question 6.2).

In response:

- Enel X, Origin and VIOTAS were generally supportive of the proposed BM development process. Enel X and Origin also suggested that the Guidelines should include:
  - the matters that AEMO will consider when deciding on a new BM (Enel X);
  - a description of how AEMO will assess the costs and benefits of implementing a new BM (Enel X and Origin); and
  - a reasonable maximum timeframe for AEMO to implement a new BM from the time of application (Enel X and Origin).
- VIOTAS suggested that AEMO should allow for the development of new BMs to commence as early as possible, as new BMs would be important to support the growth of the WDRM.
- Brickworks suggested that BMs should be designed in such a way that the baseline settlement quantity is capped at the metered energy value, to avoid the potential for negative WDR settlement outcomes.

4.8.2. AEMO's assessment

The majority of submissions on the BM development process were generally supportive of AEMO's proposal.

AEMO has included in the draft Guidelines details on its decision on a new BM, including a description of the assessment of costs and benefits, consistent with the suggestions by Enel X and Origin.

AEMO recognises that stakeholders would value the certainty that would be provided by capping the total time for implementation of a BM. However, AEMO considers that uncertainty about system implementation timeframes makes it challenging to set such a cap. Instead, AEMO has included an additional deadline into the process proposed in the Issues Paper, which caps the time between AEMO notifying a proponent of its draft decision and commencing consultation on the draft decision at 40 business days. The inclusion of this deadline means that the total time from the receipt of a complete application to AEMO's final decision is capped at 110 business days, which provides increased certainty to DRSPs.

In response to VIOTAS's suggestion to allow for development of new BMs to commence as early as possible, AEMO anticipates that its assessment of the incremental benefits of a new BM will require experience with the operation of the WDRM and the performance of existing BMs. For this reason, AEMO expects that assessments of new BMs will benefit from lessons learned from the first summer of operation of the WDRM (2021-22), potentially resulting in improved efficiency in the establishment of additional BMs.

In response to Brickworks' suggestion for AEMO to prevent negative settlement outcomes through the specification of BMs, AEMO notes that the AEMC specifically articulated that it intended to allow for negative settlement outcomes in the WDRM design.[20]

AEMO considers that the proposed process in the Issues Paper balances flexibility and prudent management of implementation cost and time, and includes measures to provide transparency to the applicant and the broader market. In this way, AEMO considers that the proposed process is consistent with the Guidelines Principles, particularly Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

4.8.3. AEMO's conclusion

AEMO has determined to adopt the BM development process that was proposed in the Issues Paper, with the addition of a 110 business day cap between AEMO notifying a proponent of its draft decision and commencing consultation on the draft decision. Further, AEMO has included details in the draft Guidelines of the matters that AEMO will consider when assessing and deciding upon a new BM, including costs and benefits.

4.9. Applying a baseline methodology and settings to a WDRU

4.9.1. Issue summary and submissions

The Issues Paper described AEMO's proposed process for a DRSP to apply to AEMO for approval to apply a BM and baseline settings to its WDRU, which included:

- nomination of a BM and baseline settings through either an application form (if concurrent with an application to register as a DRSP) or through the Portfolio Manager system, requiring selection from the register of BMs and baseline settings published by AEMO under NER 3.10.3(d); and
- assessment by AEMO of whether the proposed BM and baseline settings enable the WDRU to satisfy the BM metrics.

The Issues Paper asked stakeholders to nominate any further information on the process for applying BMs to WDRUs that they considered should be included in the Guidelines (Question 6.2).

In response:

- Enel X, Origin and VIOTAS were generally supportive of the proposed BM development process. Enel X sought clarification on whether there would a fee for an application to change the BM applied to a WDRU and, if so, whether the fee would apply per WDRU or per application.
- Brickworks suggested that an application to change the BM that applies to a WDRU should not result in an existing WDRU being ineligible for participation in the WDRM while AEMO is assessing the application.

4.9.2. AEMO's assessment

The majority of submissions on the application of a BM to a WDRU were generally supportive of AEMO's proposal.

AEMO has responded in relation to application fees in section 4.3.2.

AEMO agrees with Brickworks that where a WDRU is baseline compliant, it should be permitted to continue participating in the WDRM while an application to change the BM applying to that WDRM is

[20] AEMC, 11 June 2020, *Rule Determination, National Electricity Amendment (Wholesale Demand Response Mechanism) Rule 2020 / National Electricity Retail Rule (Wholesale Demand Response Mechanism) Rule 2020*, pages 120 and 201, https://www.aemc.gov.au/sites/default/files/documents/final_determination_-_for_publication.pdf.

assessed. However, NER 3.8.2A(c) requires that a WDRU that is baseline non-compliant, or an aggregation that contains a baseline non-compliant WDRU, must not participate in the WDRM. AEMO is developing a process whereby a DRSP will be able to suspend a baseline non-compliant WDRU within an aggregation that will allow the remainder of the aggregation to continue participating in the WDRM.

AEMO considers that the proposed process in the Issues Paper is transparent and administratively simple. AEMO considers that the proposed process is consistent with the Guidelines Principles, particularly Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

4.9.3. AEMO's conclusion

AEMO has determined that the draft Guidelines will describe the process that was proposed in the Issues Paper for applying a BM and baseline settings to a WDRU.

4.10. Maximum Responsive Component

4.10.1. Issue summary and submissions

The MRC has two main purposes under the NER:

- The NMI-Level MRC caps the WDR settlement quantity at that NMI. This may be a decimal value.
- The DUID-Level MRC caps the amount of WDR capacity that may be offered in central dispatch for that DUID. Where the WDR DUID is an aggregation of WDRUs, the DUID-Level MRC will equal the aggregate of the NMI-Level MRCs or a lower value specified by AEMO as a condition of aggregation.[21] The DUID-Level MRC, which must be an integer value of at least 1 MW, is an item of bid and offer validation data for the DUID.

The Issues Paper proposed that the Guidelines would set out the following process for a DRSP to apply to AEMO for approval to set or change a NMI-Level MRC or DUID-Level MRC:

- nomination of the NMI-Level MRC to be made for each relevant load through either an application form (if concurrent with an application to register as a DRSP) or through the Portfolio Manager system;
- nomination of the DUID-Level MRC to be made through either an application form (if concurrent with an application to register as a DRSP) or through the Portfolio Manager system, noting that this nomination may occur concurrently with an application to aggregate WDRUs or an application to change the NMI-Level MRC for a WDRU that is within an existing aggregation;
- where the nomination is made concurrently with an application for classification or aggregation, AEMO's assessment of MRC nominations to occur within the existing assessment timeframes for classification and aggregation applications[22];
- for nominations that are not concurrent with applications for classification and aggregation, AEMO to determine whether further information is required within 5 business days, and approve or reject the application within 15 business days from the latter of the initial application or the receipt of any further information that was requested;

[21] NER Chapter 10, glossary definition of "maximum responsive component".

[22] For an application to:
- Classify a load as a WDRU, AEMO must advise the applicant within 5 business days of any further information or clarification required in support of the application (NER 2.3.6(c)). However, a specific deadline is not stipulated for AEMO to approve or reject the application.
- Aggregate WDRUs, AEMO must assess the application and advise the applicant within 20 business days (NER 3.8.3(e)).

- nominations of the NMI-Level MRC to include the identity of the DRSP, details of the load (NMI, address, identity of the end customer (subject to privacy requirements)), the proposed NMI-Level MRC for the WDRU and an explanation of how the WDR will be provided from the load;
- nominations of the DUID-Level MRC to include an explanation for the nomination;
- AEMO's assessment of the MRC nomination to consider the information submitted with the application, metering data from the WDRU and previous dispatch performance (if applicable); and
- where the WDRU will be aggregated with other WDRUs, AEMO to specify that the DUID-Level MRC equals:
  - the value nominated by the DRSP, where a nomination has been made; or
  - the aggregate of the NMI-Level MRCs for the constituent WDRUs, where the DRSP has not nominated a value for the DUID-Level MRC, rounded down to the nearest integer,
  - unless AEMO considers that a lower DUID-Level MRC is appropriate, having regard to the matters in the previous paragraph.

The Issues Paper also proposed that the Guidelines would require a DRSP to resubmit any existing dispatch bids following a change in a DUID-Level MRC, so that these bids may be revalidated against the updated bid and offer validation data. A DRSP is also expected to update its Demand Side Participation Information (**DSPI**) in accordance with the DSPI Guidelines following a change in the NMI-Level MRC of one or more of its WDRUs. These updates are provided to AEMO using the DSPI Portal, which is opened on 31 March each year, with Registered Participants required to provide data that was current as at 31 March of that year, by 5.00pm on 30 April.[23]

The Issues Paper asked stakeholders for input on the timing for MRC updates to take effect and whether any alternative approaches to adjusting the DUID-Level MRC may be appropriate (Questions 7.1 and 7.2).

In response:

- Origin expressed broad support for AEMO's proposal.
- VIOTAS indicated that it was satisfied with the proposed timeframes for assessing the MRC as part of the initial application for WDRU classification or aggregation, but suggested that MRC updates for existing WDRUs could be processed more quickly. Further, VIOTAS suggested that a DRSP should be able to apply to change the DUID-Level MRC without making a change to the NMI-Level MRCs of the constituent WDRUs.
- Brickworks suggested that AEMO should not be able to override the DRSP's nomination for the DUID-Level MRC, and that this value should default to the aggregate of the NMI-Level MRCs of the constituent WDRUs.
- Enel X sought clarification as to whether a fee would be imposed for an application to change the MRC and whether a DRSP would be able to suspend a NMI from its portfolio.

4.10.2. AEMO's assessment

Aside from Origin's broad support, the submissions on the MRC were focused on specific aspects of the process.

Regarding VIOTAS's submission about the time to assess an MRC change for an existing WDRU, AEMO notes that its ability to perform this assessment more quickly is dependent on circumstances. For example:

- a request to reduce the MRC will likely be faster to assess than a request to increase the MRC; and

[23] The timing and frequency of entries may change with future updates to the DSPI Guidelines. Recently, AEMO completed consultation on amendments to the DSPI Guidelines to include changes resulting from the introduction of the WDRM: https://aemo.com.au/en/consultations/current-and-closed-consultations/dspi-guidelines.

- a change to a NMI-Level MRC could be assessed quickly if there is no impact on the DUID-Level MRC, but a change to the DUID-Level MRC (which is an item of bid and offer validation data) will take longer as it must be implemented in AEMO's Energy Market Management System (**EMMS**).

Rather than aim to detail these various circumstances in the Guidelines, AEMO has drafted the Guidelines to specify that AEMO will assess applications as soon as reasonably practicable, but no later than 15 business days after the latter of the initial application or the receipt of any further information that was requested.

In response to Brickworks' submission, AEMO notes that the NER Chapter 10 definition of 'maximum responsive component' stipulates that the MRC for an aggregation of WDRUs is as specified by AEMO as a condition of aggregation, or otherwise defaults to the aggregate of the NMI-Level MRCs. The Issues Paper explained that AEMO would specify a lower value either:

- to give effect to a DRSP nomination for a lower value (thus allowing the DRSP to stipulate the lower value); or
- where AEMO considers that a lower value is appropriate, having regard to the information in the DRSP application, metering data and previous dispatch performance (where applicable). AEMO anticipates that it would need to use this option rarely. Nonetheless, AEMO considers that it should retain this ability, in case of any ongoing dispatch performance issues within a proposed aggregation.

AEMO has responded in relation to application fees in section 4.3.2.

AEMO considers that the proposed process in the Issues Paper is transparent and administratively simple, while allowing for the necessary scrutiny of MRC values given their use in AEMO's reliability assessments. AEMO considers that the proposed process is consistent with the Guidelines Principles, particularly:

- Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost; and
- Additional Principle 1 of ensuring adequate power system operation, and the maintenance of power system security and reliability of supply.

4.10.3. AEMO's conclusion

AEMO has determined that the draft Guidelines will describe the process that was proposed in the Issues Paper for applying to change the MRC for a WDRU, with the specification that AEMO will assess applications as soon as reasonably practicable within the required timeframe.

4.11. Access to baseline data

4.11.1. Issue summary and submissions

AEMO must provide baseline data to DRSPs and retailers which are financially responsible market participants (**FRMPs**). Baseline data encompasses the MRC, BM and baseline settings, and information about dispatch periods and quantities (NER 7.15.6).

The Issues Paper proposed that the Guidelines would include the arrangements for the provision of baseline data that are described in Table 6.

Table 6 Arrangements for provision of baseline data

Data points	DRSP access	Retailer access
NMI WDRU classification NMI mapping to DUID BM and baseline settings MRC	Access data through Portfolio Manager system	Receive reports on NMIs that have been classified as WDRUs for which they are the FRMP Receive change requests where applicable via B2B
Dispatch bids	Submit and access dispatch bids via EMMS	Access dispatch bids via EMMS from day D+1[24]
Dispatch instructions	Receive dispatch instructions via EMMS	Receive notification on day D+1 for any dispatch instructions related to their NMIs
Settlement quantities	Receive via standard settlement process	Receive via standard settlement process

Further, the Issues Paper described the limitations in dispatch data at the NMI level on day D+1, proposing that the notification of dispatch that is provided to a retailer would include:

- the intervals in which the DUID was dispatched to provide WDR;
- the dispatch quantity for the DUID (but not individual NMIs) in each of those intervals; and
- the NMIs associated with that DUID for which the retailer is the FRMP.

The Issues Paper asked stakeholders to share any potential information confidentiality concerns, issues with the proposed approach for sharing dispatch data with retailers, and advice on the frequency of periodic reports to retailers (Questions 8.1, 8.2 and 8.3).

In response:

- AGL noted the challenges of providing real-time dispatch data to the retailer and supported the proposed approach for providing the retailer with an indication of the dispatch of any of its retail customers.
- VIOTAS advised that it had no issue with the retailer being provided with dispatch quantities, but considered dispatch prices, being commercially sensitive and confidential, should not be provided.
- Energy Queensland indicated that:
  - The WDRM will increase risk for retailers due to the settlement model (whereby retailers fund the WDR payment to the DRSP) and the inexact nature of baselines.
  - Real-time information on WDR dispatch quantities by region (and potentially by DRSP) should be published, similar to the publication of generation information.
  - The Guidelines should outline the data sharing mechanisms between AEMO and DNSPs, specifically to allow DNSPs to assess risks to the security of the distribution networks, such as the effect of rapid load ramping on voltage levels. The data that DNSPs would require for their assessments would include the NMI, maximum bid size and duration, and ramp rate.[25]

[24] AEMO publishes all dispatch offers and dispatch bids, as well as other dispatch data, on day D+1 (NER 3.13.4(p) and (q)).
[25] Energy Queensland provided these comments in response to Question 3.3 and Question 4.2.

4.11.2. AEMO's assessment

The requirements for provision of baseline data and other WDRU-related information to DRSPs and retailers are set out in NER 7.15.6, which specifies that baseline data is confidential information.

The NER do not make provision for baseline data and other WDRU-related information to be provided to DNSPs. However, section 54G(1) of the NEL authorises AEMO to disclose protected information (which includes information classified as confidential information under the NER) under certain circumstances:

> *(1) AEMO is authorised to disclose protected information if—*
> *(a) the disclosure is necessary for—*
> *(i) the safety, reliability or security of the supply of electricity; or*
> *(ii) the safety, reliability or security of the national electricity system; or*
> *(b) the disclosure is necessary for the proper operation of the national electricity market*
> *…*

Since receiving Energy Queensland's submission, AEMO has consulted with DNSPs at the WDR DNSP Workshop held on 11 December 2020, and has separately met with Energy Queensland, to better understand DNSPs' concerns regarding the potential impacts of WDR activities on the security of the distribution system.

AEMO has determined that the provision of the following information to DNSPs is necessary to maintain the security of the supply of electricity and the national electricity system, to allow DNSPs to proactively manage voltages in the distribution network and to avoid unintended consequences from distribution switching operations:

- for all WDRUs connected to a DNSP's distribution network:
  - details of WDRU classification; and
  - NMI-Level MRC; and
- for all DUIDs that contain one or more WDRUs connected to a DNSP's distribution network:
  - mapping of WDRUs to DUIDs;
  - DUID-Level MRC; and
  - maximum ramp rate.

In response to VIOTAS's submission, AEMO notes that it is obliged to publish dispatch bids, including bid prices, under NER 3.13.4(p)(3).

As suggested by Energy Queensland, AEMO intends to publish real-time WDR information through its public dispatch reports, being the total available WDR capacity and the total dispatched WDR, aggregated to the regional level.

AEMO has also reconsidered its proposed arrangements in light of existing data publication mechanisms, with the aim of avoiding duplication and ensuring cost-effective implementation. In light of AEMO's obligation under NER 3.13.4(q) to publish all dispatch instructions on day D+1, AEMO considers it is unnecessary to also provide an email notification to retailers of dispatch instructions related to their NMIs, and has removed this requirement.

AEMO considers that its proposed approach in the Issues Paper, with the one omission described above, provides timely information to Market Participants to inform their decisions and maximises the use of existing systems and processes.

Accordingly, AEMO considers that the proposed process is consistent with the Guidelines Principles, particularly:

- Mandatory Principle 1 of market operation non-distortion; and

- Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.

Further, AEMO considers that the provision of information to DNSPs supports the Guidelines Principle to ensure adequate power system operation, and the maintenance of power system security and reliability of supply.

4.11.3. AEMO's conclusion

AEMO has determined that the draft Guidelines will describe the arrangements for the provision of baseline data that were proposed in the Issues Paper, with two variations:

- the removal of the email notification to retailers of dispatch instructions, which would duplicate an existing publication mechanism; and
- the addition of arrangements for the provision of specific data to DNSPs that AEMO considers necessary to maintain the security of the supply of electricity and the national electricity system.

5. DRAFT DETERMINATION

Having considered the matters raised in submissions, AEMO's draft determination is to make the Guidelines in the form published with this Draft Report, in accordance with clause 3.10.1 of the NER.

APPENDIX A. GLOSSARY

Term or acronym	Meaning
Additional Aggregation Requirement	A requirement that must be satisfied for the aggregation of WDRUs to be approved for the purpose of central dispatch that is specified in the Guidelines, in accordance with 3.8.3(b2)(4)
Additional Classification Requirement	A requirement that must be satisfied for a load to be classified as a WDRU that is specified in the Guidelines, in accordance with 2.3.6(e)(7)
Additional Information	Any information related to the supply of WDR under the NER that is determined by AEMO and included in the Guidelines, in accordance with NER 3.10.1(a)(8), which is additional to the information in NER 3.10.1(a)(1)-(7)
Additional Principle	A principle to which AEMO must have regard when developing or amending the Guidelines that is specified in the Guidelines and is additional to the Mandatory Principles in NER 3.10.1(b)(1)-(2)
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARENA	Australian Renewable Energy Agency
ASL	Ancillary service load
BM	Baseline methodology
DNSP	Distribution Network Service Provider
DNSP Endorsement	The endorsement by a DNSP of an aggregation of WDRUs for the purpose of central dispatch
DRSP	Demand Response Service Provider
DSPI	Demand Side Participation Information
DUID	Dispatchable Unit Identifier
DUID-Level MRC	The MRC in respect of an aggregation of WDRUs
EMMS	Electricity Market Management System
FCAS	Frequency control ancillary service
FRMP	Financially Responsible Market Participant
Guidelines	The wholesale demand response guidelines being developed by AEMO, through this consultation, in accordance with NER 3.10.1
Guidelines Principles	The set of principles to which AEMO must have regard when developing or amending the Guidelines, which include the Mandatory Principles in NER 3.10.1(b)(1)-(2) and any Additional Principles specified in the Guidelines
Mandatory Principles	The principles to which AEMO must have regard when developing or amending the Guidelines that are specified in NER 3.10.1(b)(1)-(2)
MASP	Market Ancillary Service Provider
MRC	Maximum Responsive Component, being the maximum quantity (in MW) of WDR that a WDRU is able to provide under the NER
MW	Megawatt
MWh	Megawatt-hour
NEM	National Electricity Market
NEO	National electricity objective

Term or acronym	Meaning
NER	National Electricity Rules
NERR	National Electricity Retail Rules
NMI	National Metering Identifier
NMI-Level MRC	The MRC of a single load that has been classified as a WDRU
NSP	Network Service Provider
PIAC	Public Interest Advocacy Centre
RERT	Reliability and Emergency Reserve Trader
Rule	*National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9*
SCADA	Supervisory Control and Data Acquisition
Standard	Power System Data Communications Standard
WDR	Wholesale Demand Response
WDR CG	WDR Consultative Group
WDRM	Wholesale Demand Response Mechanism
WDRG-TWG	WDR Guidelines Technical Working Group
WDRU	Wholesale Demand Response Unit

APPENDIX B. SUMMARY OF SUBMISSIONS AND AEMO RESPONSES

No.	Consulted person	Issue	AEMO response
Principles for developing and amending the Guidelines			
1.	Enel X	While power system security and reliability are very important, this needs to be considered alongside the NER obligation for AEMO to have regard to "the need to maximise the effectiveness of WDR at the least cost to end use consumers of electricity". The WDRM should not be used as an opportunity to impose obligations on new participants to address broader power system security and reliability issues that they are not responsible for or will not contribute to. Doing so has the potential to introduce market distortions and create barriers to entry.	AEMO agrees that principles may need to be weighed against each other when deciding upon the Guidelines, and observes that it is common for decision makers to have to weigh competing principles or objectives. For example, the application of the NEO often requires the decision maker to balance price against reliability, safety and security. AEMO also agrees that obligations on DRSPs should be commensurate with the operational impact of WDR and has sought to reflect this in the draft determination. AEMO considers that this is consistent with the principle to maximise the effectiveness of WDR at the least cost to end use consumers of electricity.
2.	Energy Queensland	Where WDRUs are located in the distribution network, collaboration with DNSPs is required to assess the risk to power system security. DNSPs are best placed to assess risks to system security posed by rapid ramp-on and ramp-off of load and, as such, provide advice to AEMO on where operational envelopes or disaggregation is required. The Guidelines should recognise and show this interdependence and points where input to and from DNSPs is required. Energy Queensland considers that management of WDR bids, which may be constrained by DNSP operational envelopes, should be the responsibility of the DRSP and should not be calculated within the dispatch engine.	AEMO agrees with Energy Queensland that the Guidelines should describe the requirements for collaboration with DNSPs, as reflected, accordingly, in the Draft Report in respect of the assessment of the power system security impacts of aggregation (section 4.5) and access to baseline data (section 4.11).
3.	Origin	To guide the development (and any subsequent amendment) of the Guidelines, Origin considers AEMO should be required to have regard to: • the need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply (as proposed in the Issues Paper); • the need to ensure consistency with obligations placed on other scheduled market participants, as far as practicable; and • the need for timely data provision.	AEMO has assessed the potential inclusion of Additional Principles according to consistency with the NEO and the avoidance of duplication between Guidelines Principles. AEMO has included the first Additional Principle suggested by Origin but considers that the second and third principles proposed by Origin are duplicative with other Guidelines Principles. The assessment is set out in section 4.1.2.

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4.	PIAC	PIAC supports the principles proposed by AEMO but recommends adding an additional principle recognising the broad benefits of WDR and that the development of the WDR market through increased participation is in the interests of consumers.	AEMO considers that this proposed Additional Principle is covered by Mandatory Principle 2 of WDRM effectiveness maximisation at least consumer cost.
5.	VIOTAS	VIOTAS agrees to the additional principles. It is our experience in the Irish market that participation of active and well organised demand response in the wholesale market, and ever faster responding demand response has increased the opportunity for renewable energy resources to displace thermal power stations. There is no doubt that the inclusion of demand response in the Irish electricity market has ensured there is enhanced power system operation and maintained power system security and reliability of supply. Further, our experience has proven the versatility and viability of using demand response across a range of uses that till recently was the sole domain of generators and other infrastructure assets. Allowing DRSPs to innovate and support them with a range of methods by which they can provide WDR can only enhance the system security and reliability of supply. The principle stating that developing and amending the guidelines to consider a range of methods by which DRSPs may provide WDR will be critical in helping to unlock the full range of potential demand response assets in order to maximise participation in the WDRM. VIOTAS is confident that this will be repeated in the NEM with the introduction of the WDRM.	AEMO notes VIOTAS's support. However, AEMO has determined to not include Additional Principle 2 that had been proposed in the Issues Paper, as per the assessment set out in section 4.1.2.
6.	VIOTAS	VIOTAS believes that, in general, AEMO has well covered the principles. However, there needs to be a recognition that while conventional generation and demand response assets may be treated the same in the market, they are inherently different in terms of their physical characteristics. These differences need to be recognised and accommodated in the process of developing and implementing requirements for provision of demand response services.	AEMO recognises the inherent differences between generation and demand response, and has sought to reflect this in the draft determination. Specifically, AEMO considers that the processes for assessment of the power system security implications of aggregation (section 4.5.2) and the WDRU telemetry requirements (section 4.6.2) account for these differences, particularly the potential for geographically dispersed aggregations.
Scope of the Guidelines			
7.	AGL	We support the proposed guideline information AEMO has outlined in the Issues Paper. With regard to the additional information that may be included in the	AEMO notes AGL's support.

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		guideline, we agree with AEMO's proposed approach. In the interests of providing stakeholders with the information necessary for registration and classification of DR units as early as possible, we agree with AEMO's position of limiting the additional guideline information. In particular, we support the additional information regarding the potential impacts of aggregation on system security and the provision of dispatch data to DRSPs and retailers.	
8.	AGL	Whilst ideally information relating to the baseline methodology metrics and AEMO compliance assessments should be included in the Guideline, given we expect this information will be available to stakeholders once finalised, the WDR guideline should not be delayed to accommodate this information.	AEMO notes AGL's support and acknowledges that some compromises were necessary to develop the Guidelines according to the current schedule. AEMO will consider merging this information into the Guidelines at a later date.
9.	Enel X	Enel X's preference is for AEMO to consult on all matters relating to WDR participation at once, so stakeholders can consider the package as a whole and understand the interactions between each part. However, we recognise that the detailed baseline, dispatch and compliance arrangements will take more time to develop. These matters are key parts of the framework and prospective DRSPs will need to understand this detail to determine if / how they will participate. For this reason, we support development and consultation on those matters as early as possible. When all matters are finalised, it would make sense for them all to be set out in the one guideline.	AEMO notes Enel X's support and acknowledges that some compromises were necessary to develop the Guidelines according to the current schedule. AEMO will consider merging this information into the Guidelines at a later date.
10.	Enel X	It would also be helpful if the guidelines made clear how a DRSP will enrol loads that are to be used to provide FCAS as well as WDR. The more streamlined this process is across the two services (for example in terms of classification, aggregation and technical validation), the better.	AEMO has not included information in the draft Guidelines regarding loads that are used to provide FCAS or the transition from MASP to DRSP. As an instrument that is subordinate to the NER, the Guidelines are drafted in a manner that aligns with the decisions that AEMO must make under the NER. The decisions in respect of WDRUs and ancillary service loads (ASLs) are distinct in the NER. AEMO also notes that the technical validations for WDRUs and ASLs are quite different. Instead, AEMO will describe in relevant registration forms and guides how a DRSP may submit combined applications for classification of WDRUs and ASLs.
11.	Enel X	Given the Market Ancillary Service Provider (MASP) category will be replaced by the DRSP category, guidance (either in the guidelines or elsewhere) on how existing	It is AEMO's preference to not include transitional matters in the Guidelines. However, AEMO will provide more information on this transition and is considering the best mechanisms

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		MASPs will be transitioned to the new category, or whether grandfathering arrangements will apply, would be helpful.	through which to support existing MASPs through the transition.
12.	Energy Queensland	Energy Queensland considers that further detailed information is required as to how the WDRM will be implemented.	AEMO considers as appropriate the provision of WDRM information on: • processes through the Guidelines, the Baseline Compliance and Metrics Policy, and the forthcoming document on dispatch non-conformance assessments; • systems through user guides and technical specification documents; and • implementation through AEMO's website and the WDR CG.
13.	VIOTAS	VIOTAS agrees that it is important to release the Guidelines as soon as possible to ensure prospective DRSPs are aware of the processes involved, consequences of possible actions or inactions and the compliance requirements. However, the practicality of meeting AEMO's deadlines required trade-offs such that additional information must follow the publication of the Guidelines. While VIOTAS believes this is not an ideal situation we accept it in the interest of meeting the WDRM market go live deadline. As such VIOTAS believes it is reasonable to include the additional information as a future amendment to the Guidelines.	AEMO notes VIOTAS's support.
Conditions for classification of a load as a WDRU			
14.	Brickworks	A site should be capable of providing WDR based on the metering that currently exists at the site. We do not agree that 5-minute metering must be installed in order for site to be eligible for WDR.	WDRUs, like other scheduled facilities, will operate on a 5-minute dispatch cycle and will be compensated according to 5-minute pool prices. AEMO will be able to perform WDR settlement only in accordance with the settlement equations in NER 3.15.6B with 5-minute metering, which can allocate the WDR quantities to the respective 5-minute prices.
15.	Enel X	We seek clarification on the eligibility of loads with multiple NMIs. Many commercial and industrial sites have multiple NMIs, including parent and child NMIs, so further clarification on their ability to participate would be appreciated. Importantly, these types of sites are currently able to provide FCAS under the MASP framework, and thus it is not clear whether FCAS provision would be prevented when the DRSP framework replaces the MASP framework.	AEMO has provided clarification in the draft Guidelines in respect of loads with multiple connection points, being loads with electrical equipment that can be switched between different connection points. AEMO understands that the provisions in NER 2.3.6(m)(1) related to the connection configuration of the load apply in respect of WDRUs, not ASLs, which are the subject of NER 2.3.5.

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16.	Enel X	The Issues Paper notes that AEMO must advise within five business days of any further information or clarification required to support the application, but there is no specific deadline for AEMO to approve or reject the application. The guideline should include a deadline, so that application approvals are not delayed indefinitely, and applicants have certainty about the timing of AEMO's decision.	AEMO has determined to not include a deadline for assessing an application to classify a load as a WDRU in the Guidelines. AEMO will consider including such a deadline in a future update to the Guidelines after having gained experience with the operation of the WDRM.
17.	Enel X	We seek clarification on whether any fees would apply to applications for classification and aggregation, and whether these would be charged on a per NMI or per application basis.	AEMO sets application fees on a cost-recovery basis. AEMO will share further information with stakeholders in relation to application fees during the first half of 2021.
18.	Energy Queensland	In Energy Queensland's view, further consideration of the following matters is required: • how response will be controlled from a DNSP perspective; • impacts resulting from response that is based on average loads rather than current actual loads; and • the quantity of data and communications required from DNSPs.	Regarding the matters raised by Energy Queensland: • the potential for ramping and other restrictions on the participation of aggregated WDR is discussed in section 4.5; • dispatch quantities will be estimated based on deviations from estimated baseline quantities, given that baselines are not calculated in real time; and • WDRU telemetry requirements are discussed in section 4.6.
19.	Origin	Origin is generally supportive of the proposed additional conditions set out under Table 2 of the Issues Paper. This includes the requirement that five-minute metering must be available at the connection point.	AEMO notes Origin's support.
20.	Origin	For additional clarity: • there would be benefit in providing examples of what would constitute a spot price exposed load, consistent with the definition provided in the NER; and • the Guidelines should make clear the eligibility requirements with respect to the aggregation of small business customer NMIs (consistent with NERL/NERR requirements) and the process AEMO will undertake to confirm compliance with this requirement. Consideration may also need to be given to whether there are any implications for life support arrangements associated with NMIs seeking to be classified as WDRUs.	AEMO has amended the Additional Classification Requirement related to spot price exposure, such that the DRSP must declare to AEMO that it will provide an available capacity of zero for the load, if the load is spot price exposed in a trading interval. Consequently, AEMO considers that the AER is better placed to provide examples of what would constitute a spot price exposed load, either within or accompanying the WDR participation guidelines to be developed by the AER under NER 3.8.2A(g). AEMO considers that the potential inclusion of small business customer loads is sufficiently explained in the definition of small customer load in NER 2.3.6(m)(2) – which provides that a load is a small customer load if the retail customer is a small customer, and has not entered into an agreement with the

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			retailer to treat the load as if it is aggregated with other loads, in accordance with rule 5(2)(a) of the NERR. AEMO does not have visibility of life support arrangements so cannot use this a basis for exclusion. Regardless, AEMO considers that the retail customer is best placed to consider any life support arrangements when deciding on whether to participate in the WDRM.
21.	VIOTAS	The classifications appear to be clear and coherent to VIOTAS.	AEMO notes VIOTAS's support.
Assessment of power system security impacts of WDRU aggregation			
22.	Brickworks	The term "weaker area of the power system" does not appear to have any definition other than what AEMO deems it to be on any given day. This term should be clearly defined based on metrics or should be removed from the guidelines.	AEMO agrees and has avoided the use of the imprecise phrase "weaker areas of the power system" in the Guidelines, as described in section 4.5.2.
23.	Enel X	The grounds for conducting a system security assessment for aggregations over 5 MW are not clear. It is important to be mindful of the various ways in which wholesale demand response can be provided. It is also important to remember that wholesale demand response is generally provided: by way of a reduction in load; in response to very high spot prices (i.e. not all the time, primarily in summer months); by energy consumers who have autonomy over how and when they use electricity. The types of customers who are likely to participate in the mechanism are similar to those who choose to be spot exposed. Spot exposed customers can and do change their consumption in response to wholesale prices without any notification to AEMO. From a visibility and controllability perspective, AEMO would presumably prefer energy users to participate in the mechanism than be spot exposed. Power system security assessments for small aggregations of wholesale demand response are likely to deter participation and push customers toward spot exposure instead, over which AEMO has no visibility or control. Any limitations on potential aggregations should be proportionate to the portfolio's actual potential to materially affect power system security when the demand response is likely to be provided. Limitations that are disproportionate to the risk will only introduce market distortions and create barriers to entry. If an assessment is necessary, the process and considerations should be clearly set out in the guideline. The load classification process requires a DRSP to have already	AEMO has articulated the need to conduct a system security assessment in section 4.5.2, including the basis of the 5 MW threshold and an explanation of relevant differences between generation and WDR. AEMO has also sought to provide clarity in the draft Guidelines regarding the reasons that an aggregation may not be permitted, which are based on management of power system security and the operation of the central dispatch process. AEMO acknowledges that customers can provide demand response through various mechanisms, and agrees that WDRM participation is preferable to off-market demand response from the perspective of predictability and dispatchability. AEMO's draft determination seeks to impose only those requirements necessary to ensure that the dispatch of WDR is consistent with the management of power system security, particularly the application of constraints in the central dispatch process. AEMO also considers that the inclusion of a DNSP Endorsement process for certain aggregations will improve the predictability of AEMO's assessment process.

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		recruited customers for participation and installed relevant metering and telemetry hardware before a system security assessment would occur. If the outcome of the assessment is that the aggregation is not permitted, the time and costs that were expended to reach that stage may be wasted. If AEMO publishes detailed information upfront about what the assessment will involve, DRSPs will be able to self-assess before they recruit and enable customers for participation. As noted above, it is reasonable to be cautious about, and protect against, the potential impact of WDR on system security. However, the framework should not be used as an opportunity to restrict participation by, or impose obligations on, new participants to address broader system security or reliability issues that they are not responsible for or have no ability to manage, e.g. system strength. Energy users can currently reduce their demand at any time, without notice. Similarly, customers who choose spot exposure will tend to engage in synchronised demand reduction without AEMO having any visibility, notice or control over that. One of the objectives of the mechanism is to make wholesale demand response more visible and controllable. This objective is unlikely to be achieved if the requirements for participation are onerous or opaque.	
24.	Enel X	The issues paper states that the assessment of the power system security implications of aggregation will be similar to that which AEMO uses for non-scheduled generating units between 5-30 MW. While it may be helpful to draw on existing frameworks, wholesale demand response is not non-scheduled generation. Further information about what the existing system security assessment for non-scheduled generation involves, and how this is applicable to wholesale demand response, would be helpful.	AEMO agrees that WDR is different to non-scheduled generation. AEMO has decided to describe an assessment process in the draft Guidelines that is specific to WDRU aggregations.
25.	Enel X	The guidelines should also provide clear direction on how AEMO will interpret the phrase "materially affect", how long a system security assessment would take, and who would bear the costs.	NER 3.8.3(b2)(2) indicates that a condition of aggregation is that AEMO must be satisfied that "*power system security* must not be materially affected by the proposed aggregation". Under the draft Guidelines, AEMO has indicated that it will assess the power system security impacts of a proposed aggregation where one or more WDRUs in the proposed aggregation is located in an area of the power system where scheduled plant needs to be curtailed, or is forecast to be curtailed, to maintain power system security for at least five hours per year.

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			NER 3.8.3(e) obliges AEMO to evaluate applications for aggregation within 20 business days. The assessment of power system security impacts of a proposed aggregation, where required, must be performed by AEMO within this timeframe. See AEMO's response at item 17 in relation to application costs.
26.	Enel X	With respect to the concept of "weaker areas of the power system": there is unlikely to be a consistent view of what this means across the reports mentioned in the issues paper, and what technical parameters it includes. The more information AEMO can provide upfront in the guideline about how AEMO would define a weak area, and where these areas are, the better. Transparent and regularly updated information about these matters will help inform DRSPs before they recruit loads for WDR participation.	AEMO has avoided the use of the imprecise phrase "weaker areas of the power system", instead indicating that AEMO would need to assess a proposed aggregation smaller than 5 MW where one or more WDRUs in the proposed aggregation are located in a congested area of the power system where existing and committed scheduled plant needs to be curtailed to manage power system conditions (such as voltage, transient or thermal limits). The draft Guidelines also refer DRSPs to various mechanisms that provide information about network congestion.
27.	Enel X	Further information about why AEMO expects wholesale demand response might materially affect power system security in a weaker area of the system would be helpful, particularly given that demand reductions do not have the same system impact as increasing generation, and in fact can help alleviate grid congestion.	AEMO notes that the draft Guidelines only require assessment of power system security impacts where one or more WDRUs in the proposed aggregation is located in a congested area of the network. However, AEMO may approve an aggregation where it considers that it can be represented as a single DUID in constraints, and that the relevant DNSP has endorsed the aggregation (where applicable).
28.	Energy Queensland	Energy Queensland considers that further information is required to address potential issues that may arise as a result of a sudden drop in load without notice, including: • substantial voltage swings (especially in regional areas); • voltage instability (especially in regional areas); and • reduced voltage control due to limited tapping range on on-load tap changer transformers. In order to collaborate with AEMO, DNSPs will require the following minimum information: • the proposed WDRU National Metering Identifier; • maximum bid size and duration in megawatts; and • ramp rate.	AEMO accepts Energy Queensland's concern regarding the risk of voltage issues in distribution networks, and considers that DNSPs are best placed to assess these risks. AEMO considers that a DNSP's assessment of a proposed aggregation, where required, would result in an endorsement or rejection of the proposed aggregation, as well as an indication of any restrictions that must be imposed on the aggregation, such as ramp rate limits.

No.	Consulted person	Issue	AEMO response
		This information will enable DNSPs to assess potential risks to the network ahead of time (for example, at application) and any operating envelopes that may need to apply.	
29.	Origin	Origin agrees the Guidelines should set out the matters AEMO will consider when assessing the power system security impacts of aggregation, as well as a description of the changes to power system conditions that may necessitate disaggregation. With respect to the latter, it will be important for the Guidelines to clarify whether the potential for disaggregation is limited to WDRU aggregations with a capacity above the proposed 5 MW threshold, or all aggregations.	AEMO notes Origin's support. With respect to potential disaggregation, the draft Guidelines describe the circumstances in which AEMO may require aggregated WDRUs to be disaggregated, which relate to: • the potential need to represent the WDRUs within the aggregation as two or more dispatchable units in constraints used in central dispatch; and • continuing dispatch non-conformance. AEMO considers that these circumstances could apply to all aggregations, irrespective of size.
30.	PIAC	We note AEMO intends to assess proposed WDRU aggregations to ensure they do not 'materially impact' power system security. AEMO indicates triggers for this assessment will include whether the proposed aggregation is in a 'weaker area of the power system' and if it is above 5 MW. We are concerned these triggers may add unnecessary costs and barriers to participating in WDR. PIAC is also concerned the 5 MW threshold for assessment of power system impacts is arbitrarily set and may unnecessarily limit participation. We welcome further consideration of whether the 5 MW threshold is appropriate and encourages efficient levels of WDR. PIAC notes AEMO intends to use a process similar to the one it uses for non-scheduled generating units in its assessment of power system security implications of aggregation. In some respects, DRSPs and non-scheduled generators do not have the same impacts on the energy system and it is not appropriate to treat them as equivalent. Any arrangements for including flexible demand in the wholesale market should be suitable for flexible demand units rather than simply replicating what has been designed for large generators. PIAC appreciates AEMO's responsibility to ensure system security and anticipate and mitigate potential impacts of WDR on it. However, we caution the framework should not restrict participation by, or impose obligations on, new participants to address broader system security or reliability issues that they do not cause or have little ability to control.	See AEMO's responses at items 23 to 26.

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31.	PIAC	Both 'material impact' and 'weaker area of the power system' are subjective terms, which may add costs to participants looking to aggregate WDRUs. For example, DRSPs may spend resources recruiting customers in a certain area to participate in WDR and then find their aggregation is not accepted by AEMO as it is in a weaker area of the system and has a material impact on system security. We support AEMO including in the Guidelines an explanation of how it will interpret these and how DRSPs can find information about weaker areas of the power system. However, we recommend AEMO also provide accessible, usable and consistent definitions of what constitutes a material impact and a weaker area so DRSPs can establish and register aggregations most efficiently.	AEMO has avoided the use of these subjective terms in the draft Guidelines, instead indicating that AEMO would need to assess a proposed aggregation smaller than 5 MW where one or more WDRUs in the proposed aggregation are located in a congested area of the power system where existing and committed scheduled plant needs to be curtailed to manage power system conditions (such as voltage, transient or thermal limits). The draft Guidelines also refer DRSPs to various reporting mechanisms that provide information about network congestion.
WDRU telemetry and communications requirements			
32.	Brickworks	We do not agree that telemetry should be required in order to participate in WDR which imposes a significant cost on large users. The proposed 5 MW threshold is too low. AEMO has provided no compelling evidence of why telemetry is required at large users' sites in order to provide demand response. These sites may vary electricity consumption levels under business as normal use or shut down a plant for maintenance activities with no notice to AEMO currently. Unless the site is extremely large (>30 MW), AEMO should account for the demand response volume via its load forecasting process.	AEMO has taken a 'first principles' approach to determining the WDR telemetry requirements in the draft Guidelines, as outlined in section 4.6.2. This approach considers the relative merits of estimates and real-time measurements in power system operation, and establishes default requirements and an exemption process, without specific reference to requirements imposed on scheduled generation. AEMO considers that the requirements in the draft Guidelines allow for the use of telemetry data in circumstances where it will provide a material benefit to maintaining adequate power system operation and avoiding distortions in the market, without imposing unnecessary costs on DRSPs.
33.	Brickworks	If an exemption process is established in respect of telemetry requirements, the exemption should be granted if the cost of the telemetry is unreasonable given the profitability of the business or prevents the large customer from participating in WDR.	AEMO disagrees with Brickworks' suggestion that exemptions should be granted where the cost of telemetry would prevent the customer from participating in the WDRM. Where AEMO considers that it is unable to exempt a DRSP from providing telemetry due to power system operation requirements, the implication is that power system security could be impacted if AEMO, in the absence of the telemetry data, would be unaware of dispatch deviations.
34.	Enel X	The rationale for requiring real time telemetry is still not clear. The starting point should not be to apply the same telemetry requirements to DRSPs as to scheduled generators.	See AEMO's response at item 32.

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		Imposing the same telemetry requirements on DRSPs as scheduled generators is not proportionate to the risk or reflective of the way in which they will be participating. A market that requires DRSPs to make the significant investment in SCADA for a portfolio of load that will only participate during high price events (and will only earn revenue during those periods) is unlikely to be attractive to enter. The costs of real-time telemetry for scheduled generators are small compared to the revenue potential of regular market participation. As demand response customers will not seek to be regularly dispatched, the cost-benefit trade-off for real-time telemetry is very different. This approach is inconsistent with one of the principles that the final rule requires AEMO to have regard to: to "maximise the effectiveness of WDR at the least cost to end use consumers of electricity." Markets overseas that have significant levels of wholesale demand response participation have recognised that real-time telemetry isn't required, and that the cost/benefit trade-off for it is very different for large aggregations of small loads than it is for centralised generators. These markets instead rely on aggregators properly managing their commitments through their offers or availability reporting. The Issues Paper notes that telemetry data would be used to "represent real-time estimates of the quantity of WDR that is being provided by the WDRU". This suggests that AEMO would only find telemetry data from a DRSP useful for the periods in which the portfolio is being dispatched. DRSPs, while required to be scheduled, will not seek to be dispatched anywhere near as often as scheduled generators are. Most prospective WDR loads (commercial and industrial customers) do not want their load to be interrupted too often, and so will only agree to offering demand response where the benefits outweigh the costs, i.e. during high spot price events. It would be inefficient and inconsistent with the principles of the mechanism to require DRSPs to invest in telemetry arrangements that are only useful during dispatch periods.	
35.	Enel X	Under the final rule, AEMO must approve the classification of a load as a wholesale demand response unit if it is reasonably satisfied that, among other things "the DRSP has adequate communications and/or telemetry in place to support the issuing of dispatch instructions in respect of the load". There are a range of alternatives to SCADA that can meet this requirement.	AEMO intends to review the Standard in 2021 to allow for additional, lower cost interfaces to SCADA and to update existing requirements.

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36.	Enel X	The Issues Paper references the Power System Data Communications Standard as the starting point for telemetry requirements but notes that this document will soon be amended. In the absence of further detail about why and which aspects of the standard will be reviewed, it is not clear to what extent the existing standard reflects what is proposed to apply to DRSPs. The paper also flags that the review of this standard is not expected to be complete until mid-2021. Potential DRSPs will be unable to decide whether to participate in the WDR mechanism, or make the necessary investments in hardware, until the telemetry requirements are clear. The earlier AEMO can set out what requirements will apply to DRSPs, the better.	AEMO acknowledges that amendments to the Standard are likely to affect the cost of installing telemetry, and intends to review the Standard in 2021.
37.	Enel X	Further discussion of the following should precede any further development of this aspect of the guideline: 1. What data AEMO actually needs from DRSPs to fulfil its functions. 2. How frequently this data needs to be provided, and what latency is acceptable, noting that the stricter these requirements are the more expensive and less attractive participation in the mechanism becomes. 3. Alternatives to SCADA to deliver on the above.	As described at item 32, AEMO has taken a first principles approach to setting the telemetry requirements. AEMO has also included information on the mandatory and optional data channels in Appendix A of the draft Guidelines. Items 2 and 3 will also be addressed through the review of the Standard.
38.	Enel X	Given the potential for the mechanism to include small customers in future, and the long-term objective to move to a two-sided market, the question of whether SCADA is really required is eventually going to need to be addressed.	AEMO considers that the first principles approach applied in this Draft Report considers the telemetry requirements from the perspective of management of power system security in the central dispatch process. AEMO anticipates that alternative telemetry protocols are likely to be developed in line with future market reforms, however the timeframe for implementation of the WDRM necessitates the use of existing platforms and systems as much as practicable.
39.	Enel X	The interactions between the provision of FCAS and the provision of WDR under the DRSP category are unclear. Further consideration of the telemetry and other technical requirements that will apply to a DRSP's provision of WDR and FCAS is needed.	AEMO has not included information about telemetry requirements for ASLs in the Guidelines. These are specified in the Market Ancillary Services Specification.
40.	Origin	Origin considers real-time telemetry/communications requirements should be consistent with those applying to generating units to the extent possible, and we broadly agree with the circumstances described by AEMO that would necessitate such requirements being met. We also agree it is appropriate for the Guidelines to reference the Power System Data Communications Standard.	AEMO notes Origin's support.

No.	Consulted person	Issue	AEMO response
41.	Origin	It may be beneficial for the Guidelines to specify a set of minimum data points to be provided by WDRUs.	The draft Guidelines describe the required data channel, being real-time estimates of the quantity of WDR that is being provided by the WDRU (individual or aggregated, as applicable), as well as optional data channels.
42.	PIAC	We do not support applying the same telemetry and communication requirements as generators to DRSPs as a default. As mentioned above, DRSPs do not necessarily provide the same services to and do not participate in the market in the same way as generators. The Guidelines must balance the value of having control and visibility over loads with the need to offer value to participants and meet the requirement under the Rules for AEMO to 'maximise the effectiveness of WDR at the least cost to end use consumers of electricity.' Rather than arbitrarily determined telemetry and communications requirements that are not applied equally to WDRUs, AEMO should determine fit-for-purpose requirements that balance the need for visibility and control with delivering a cost-effective mechanism that maximises benefits to consumers.	See AEMO's response at item 32.
43.	VIOTAS	While it may seem reasonable to expect that some sites will not require telemetry, administrating a system which must examine each DUID or each site to ensure it has not exceeded a capacity threshold and therefore must deploy telemetry in retrospect is wasteful and inefficient. VIOTAS is therefore of the view that it would be far simpler for AEMO to develop and administer the WDRM if there is a blanket requirement for DRSPs to provide telemetry data. This will ensure clarity of the Guidelines and guarantee there is a level playing field.	AEMO disagrees with VIOTAS's suggestion. AEMO considers that it would inefficient and a barrier to entry to require telemetry from smaller WDRUs or aggregations for which the real-time telemetry data would provide negligible benefit and/or is not considered critical for power system operation. AEMO's reasoning is further articulated in section 4.6.2.
Regional thresholds for increased visibility of WDRUs			
44.	Enel X	The Issues Paper suggests that AEMO is required to determine a threshold for the total quantity of WDR in a region above which it will impose additional or alternative telemetry and communications equipment requirements. Rather, the rule gives AEMO the flexibility to decide whether a threshold is necessary, with the requirement being that AEMO must publish this threshold if it determines that one is needed. Enel X does not believe that the case for a threshold has been made.	AEMO agrees that NER 3.10.1(c) provides AEMO with the option to set regional thresholds. AEMO has set out its reasoning for setting these thresholds in section 4.7.2.
45.	Enel X	Figure 1 in the Issues Paper suggests that all participating WDR providers will only deliver 50 per cent of what was asked of them. It is plausible that a single load will underdeliver significantly, but the likelihood of entire portfolios of multiple	AEMO acknowledges that the example in the Issues Paper, which was for illustrative purposes only, may not be

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		competing DRSPs underdelivering significantly is extremely low. The WDR mechanism will impose a range of commercial, regulatory and reputational incentives on DRSPs to make sure they deliver on their dispatch instructions. It is important not to overstate the problem to justify a policy position, even in examples.	representative of the dispatch performance that will occur under the WDRM. AEMO has provided dispatch performance results from the RERT activations in the 2019/20 summer in section 4.7.2. AEMO acknowledges that there are substantial differences between the RERT and WDR mechanisms, such as customer type, incentives and dispatch notice, but considers this performance data to be a useful reference point for the setting of initial regional thresholds.
46.	Enel X	Instead of imposing restrictions now based on an assumption that DRSPs will be poor dispatch performers, AEMO should observe actual dispatch error trends following market start and decide on the best way to address this should the problem arise. The indicative threshold of 1% of max demand is extremely low. This approach is likely to drive first-mover DRSPs to establish WDRUs that are <5 MW, and to continue to do so until the regional threshold is reached. A cap would give first movers an advantage – the parties that enter the market first will benefit from less stringent requirements. The suggestion that the threshold could be revised over time is unlikely to give potential DRSPs any certainty about the requirements that will apply to them.	AEMO acknowledges that the proposed initial thresholds are conservative. However, AEMO considers this is appropriate in the absence of representative dispatch performance data, and has designed a threshold revision approach that can allow the thresholds to adjust over time without requiring amendment of the Guidelines. AEMO has also indicated in the draft Guidelines that the regional threshold will only be considered at the time of assessing an application to classify a load as a WDRU. This means that AEMO will not retrospectively impose telemetry requirements on existing WDRUs in the event that the regional threshold falls below the current capacity of non-telemetered WDR in the region. AEMO acknowledges that some unavoidable consequences may arise from the specification of regional thresholds, such as a first-mover advantage situation, or delayed market entry where a DRSP considers there may be advantage in waiting for regional thresholds to be revised.
47.	Enel X	The equitable and efficient approach would be to determine appropriate telemetry requirements for DRSPs in line with the considerations set out in our response to question 5.1, and to apply these across the board. Again, the costs and benefits of the requirements should be assessed in light of the intention that the mechanism include small customers in future, and the move to a two-sided market.	See AEMO's responses at items 32 and 38.
48.	Origin	The trigger for updating regional thresholds should be based on a periodic assessment of observed dispatch performance.	AEMO notes Origin's support.

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49.	Origin	The Guidelines may need to address how AEMO would treat any concurrent registration applications that in combination would result in a breach of the threshold (e.g. would both providers be required to meet full telemetry/communications requirements in that instance?).	AEMO agrees with Origin's suggestion and has explained the application of the thresholds in section 4.7.2, and in paragraph 3.1(b) of the draft Guidelines.
50.	PIAC	PIAC acknowledges AEMO's desire for regional thresholds for extra telemetry and communications requirements but does not consider a satisfactory rationale for them has been established. AEMO has proposed to initially set conservative values for the regional thresholds for non-telemetered WDR which will be revised over time following observations of WDR dispatch performance and assessments of the impact on forecasting risk and uncertainty. This conservative approach will likely place unnecessary costs on participation, especially on smaller loads, and restrict the development of the WDR market placing it at odds with the requirement to 'maximise the effectiveness of WDR at the least cost to end use consumers of electricity'. Regional thresholds may also create first-mover advantage where DRSPs create aggregations up to 5 MW until the regional threshold is reached at which point new entrants are subject to higher telemetry and communications requirements. In the long-term, this may stifle competition in a region, potentially leading to inefficient operation of the market and poor outcomes for consumers. Alternatively, updates to the regional thresholds may deter first-movers as they may anticipate thresholds changing and so may not want to make decisions based on them.	AEMO has set out its reasoning for setting regional thresholds in section 4.7.2. See also AEMO's response at item 46.
Baseline methodology development process			
51.	Brickworks	Baseline methodologies should floor the WDR settlement quantity at zero, such that a large customer can never provide a negative demand response (i.e. by failing to meet a dispatch target and the actual consumption being higher than the deemed volume).	AEMO notes that the AEMC specifically articulated that it intended to allow for negative settlement outcomes in the WDRM design, as indicated in section 4.8.2.
52.	Enel X	The proposed process and timing for assessing new baseline methodologies appears sensible. We agree that the guideline should include information about what matters AEMO will have regard to when deciding whether to add a new methodology, and how it will assess what the costs and benefits are.	AEMO notes Enel X's support.
53.	Enel X	We seek clarification on whether there would be any costs to the Registered Participant proposing a new baseline methodology.	See AEMO's response at item 17.

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54.	Enel X	Regarding timing for implementation, we propose that the guideline include at least a maximum timeframe for AEMO to implement a proposed baseline methodology, so that implementation is not delayed indefinitely. This will also give DRSPs some certainty about when they might be able to apply the new methodology to current / potential customer loads.	AEMO considers that uncertainty about system implementation timeframes make it challenging to set a maximum timeframe for the implementation of a BM, as explained in section 4.8.2. However, AEMO has capped the time between AEMO notifying a proponent of its draft decision and commencing consultation on the draft decision at 40 business days. The inclusion of this deadline means that the total time from the receipt of a complete application to AEMO's final decision is capped at 110 business days, which provides increased certainty to DRSPs.
55.	Origin	Providing AEMO with flexibility to assess new baseline methodologies submitted by proponents is appropriate. We also agree the Guidelines should outline how AEMO will assess the costs/benefits of implementing a new baseline methodology.	AEMO notes Origin's support.
56.	Origin	There should be a requirement for AEMO to transparently advise the proponent and other stakeholders of its proposed assessment/ implementation plan and complete this process within a reasonable timeframe.	AEMO has included a requirement for AEMO to notify the proponent of its proposed assessment and implementation timeframe once it has completed its draft assessment at Step 4 of the process. AEMO has also capped the total time from the receipt of a complete application to AEMO's final decision, as explained in AEMO's response at item 54.
57.	VIOTAS	VIOTAS recognises the difficulty in striking an appropriate balance between flexibility and prudent management of implementation time and cost. We consider that a single baseline methodology (potentially with variants) based on existing AEMO RERT baseline (CAISO 10-out-of-10 with adjustments) will significantly limit participation in the WDRM. To the extent that it is possible, the development and review of additional baseline methodologies by AEMO (and DRSPs) should begin as soon as practicable after the release of the final guidelines	AEMO anticipates that its assessment of the incremental benefits of a new BM will require experience with the operation of the WDRM and the performance of existing BMs. For this reason, AEMO expects that assessments of new BMs will benefit from lessons learned from the first summer of operation of the WDRM (2021-22), potentially resulting in improved efficiency in the establishment of additional BMs.
Applying a baseline methodology and settings to a WDRU			
58.	Brickworks	A request to change a baseline methodology should not result in an existing WDR participant from being unable to bid while waiting for AEMO to approve the application of a new baseline methodology. No other registered participant is taken out of the market to wait for AEMO to update standing data.	AEMO agrees with Brickworks that where a WDRU is baseline compliant, it should be permitted to continue participating in the WDRM while an application to change the BM applying to that WDRM is assessed. However, NER 3.8.2A(c) requires that a WDRU that is baseline non-compliant, or an aggregation that

No.	Consulted person	Issue	AEMO response
			contains a baseline non-compliant WDRU, must not participate in the WDRM. AEMO is developing a process whereby a DRSP will be able to suspend a baseline non-compliant WDRU within an aggregation that will allow the remainder of the aggregation to continue participating in the WDRM, as noted in section 4.9.2.
59.	Enel X	The proposed approach to applying a baseline methodology and settings to a WDRU appears sensible.	AEMO notes Enel X's support.
60.	Enel X	We seek clarification on whether any fees would apply to a DRSP's request to change the baseline methodology, and whether any such fees would apply per NMI or per application.	See AEMO's response at item 17.
61.	Origin	Origin is broadly supportive of the proposed process and timing for applying a baseline methodology.	AEMO notes Origin's support.
62.	VIOTAS	VIOTAS considers that AEMO has sufficiently covered the information requirements that should be included in the Guidelines in relation to the processes and timing for baseline development and application to WDRUs.	AEMO notes VIOTAS's support.
Maximum responsive component			
63.	Brickworks	AEMO should not be able to override the DUID-Level MRC, as this should default to the sum of the NMI-Level MRCs. It is not appropriate for AEMO to de-rate the MRC of WDR, which should be set based on the application of the DRSP.	AEMO notes that the NER Chapter 10 definition of 'maximum responsive component' stipulates that the MRC for an aggregation of WDRUs is as specified by AEMO as a condition of aggregation, or otherwise defaults to the aggregate of the NMI-Level MRCs. The Issues Paper explained that AEMO would specify a lower value either: • to give effect to a DRSP nomination for a lower value (thus allowing the DRSP to stipulate the lower value); or • where AEMO considers that a lower value is appropriate, having regard to the information in the DRSP application, metering data and previous dispatch performance (where applicable). AEMO anticipates that it would need to use this option rarely. Nonetheless, AEMO considers that it should retain this ability, in case of any ongoing dispatch performance issues within a proposed aggregation.

No.	Consulted person	Issue	AEMO response
64.	Enel X	We seek clarification on whether AEMO would charge DRSPs a fee to change a NMI-level MRC or DUID-level MRC.	See AEMO's response at item 17.
65.	Enel X	One issue that may benefit from further discussion is whether DRSPs will be able to suspend a NMI from its portfolio. This will be important given the assumption that all loads in a portfolio will participate when dispatched and the potential for a non-participating load to be penalised for consumption above its baseline.	AEMO is developing a process whereby a DRSP will be able to suspend a baseline non-compliant WDRU within an aggregation that will allow the remainder of the aggregation to continue participating in the WDRM, as noted in section 4.9.2.
66.	Origin	Origin is broadly supportive of the proposed process for nominating and updating NMI- and DUID-Level MRCs.	AEMO notes Origin's support.
67.	VIOTAS	VIOTAS considers that the timing of the proposed process to update a NMI-Level MRC or DUID-Level MRC is appropriate for the submission of the initial application by a DRSP to classify a load as WDRU. Whereas a DRSP seeking to update an MRC for an existing WDRU, the best case timeframe of 15 working days could and should be significantly shortened.	AEMO notes that its ability to perform this assessment more quickly is dependent on circumstances. Examples are provided in section 4.10.2. Rather than aim to detail these various circumstances in the Guidelines, AEMO has drafted the Guidelines to specify that AEMO will assess applications as soon as reasonably practicable, but no later than 15 business days after the latter of the initial application or the receipt of any further information that was requested.
68.	VIOTAS	An alternative approach to adjusting DUID-Level MRCs will be to enable the DUID-Level MRC to be updated without a corresponding change to specific NMI-Level MRCs. This would enable the DRSP to manage the portfolio of WDRUs within the DUID to deliver services within the MRC.	AEMO has included such an application process in the draft Guidelines (paragraph 5.2(c)).
Access to baseline data			
69.	AGL	We note the challenges AEMO has identified in the Issues Paper regarding dispatch instruction information provided to the FRMP when the DUID is an aggregated unit. We support AEMO's approach of providing the relevant FRMP's NMIs that may have responded to meet the DUID dispatch instruction. This will provide retailers with a preliminary indicator of the NMIs subject to WDRM settlement process. Ultimately the Settlement reports will draw out the NMIs subject to the WDRM settlement based on a comprehensive assessment of the all NMIs' metering data that form the aggregated DR unit.	AEMO notes AGL's support.
70.	Energy Queensland	Retailers are exposed to the spot market for the difference between the baseline and actual demand. As baselining will not be exact, WDR will increase risks for retailers. While Energy Queensland supports dispatch data being made available on	AEMO intends to publish real-time WDR information through its public dispatch reports, being the total available WDR

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		Day + 1, it is unclear what information will be provided to market participants in real time on WDR. As market participants can see real time (five minute) generation, demand and price information, Energy Queensland considers that participants should also have visibility of real time WDR information by region and preferably by DRSP.	capacity and the total dispatched WDR, aggregated to the regional level, as noted in section 4.11.2.
71.	VIOTAS	VIOTAS has no issues with providing dispatch quantities to Retailers, however dispatch pricing should not be disclosed, as these prices are commercially sensitive and confidential information.	AEMO is obliged to publish dispatch bids, including bid prices, under NER 3.13.4(p)(3).

APPENDIX C. ATTACHMENT 1 – DRAFT WHOLESALE DEMAND RESPONSE GUIDELINES

Attachment 1 is available at: https://aemo.com.au/consultations/current-and-closed-consultations/wdr-guidelines.