WHOLESALE DEMAND RESPONSE GUIDELINES – INITIAL VERSION

ISSUES PAPER

Published: **October 2020**

Australian Energy Market Operator Ltd ABN 94 072 010 327 www.aemo.com.au info@aemo.com.au

NEW SOUTH WALES QUEENSLAND SOUTH AUSTRALIA VICTORIA AUSTRALIAN CAPITAL TERRITORY TASMANIA WESTERN AUSTRALIA

EXECUTIVE SUMMARY

The publication of this Issues Paper commences the first stage of the Rules consultation procedures conducted by AEMO on the Wholesale Demand Response (WDR) Guidelines (the Guidelines) to be developed under clause 3.10.1 of the National Electricity Rules (NER).

On 11 June 2020, the Australian Energy Market Commission (AEMC) made a final rule (*National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9*) to facilitate WDR in the National Electricity Market (NEM) through implementing a WDR mechanism (WDRM). The WDRM, and the majority of the new rule amendments (including many of those referenced in this paper), will commence on 24 October 2021.

As required under NER clause 11.125.2(a)(1), the Guidelines must be made and published by 24 June 2021, being four months before the date of commencement of the WDRM.

This Issues Paper aims to facilitate informed industry feedback to AEMO on the requirements and processes to be set out in the Guidelines. NER clause 3.10.1(a) requires that the Guidelines set out:

- requirements determined by AEMO for classification of a load as a wholesale demand response unit (WDRU) in accordance with NER 2.3.6 or for aggregation in accordance with NER 3.8.3 and which AEMO reasonably considers necessary;
- 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.

AEMO has set out its proposals in respect of these requirements and processes in this Issues Paper.

Stakeholders are invited to submit written responses on the proposed requirements and processes, and the questions raised, in this Issues Paper by 5.00 pm (Melbourne time) on 27 November 2020, in accordance with the Notice of First Stage of Consultation published with this Issues Paper.

CONTENTS

1. STAKEHOLDER CONSULTATION PROCESS

As required by the 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.

AEMO's indicative timeline for this consultation is outlined in Table 1 below. Dates may be adjusted depending on the number and complexity of issues raised in submissions and any meetings with stakeholders.

Table 1 Indicative timeline for this consultation

Deliverable	Indicative date
Issues Paper published	22 October 2020
Submissions due on Issues Paper	27 November 2020
Draft Determination and Draft Guidelines published	24 December 2020
Submissions due on Draft Determination and Draft Guidelines	5 February 2021
Final Determination and Final Guidelines published	25 March 2021

AEMO established the WDR Guidelines Technical Working Group (WDRG-TWG) to enable effective dialogue between AEMO and stakeholders on matters related to the development of the Guidelines.[1] The topics covered in this Issues Paper have been discussed with stakeholders at WDRG-TWG meetings on 11 August 2020 and 12 October 2020, and stakeholder feedback has informed the preparation of this paper. AEMO is planning to hold at least one further WDRG-TWG meeting during the submission period for this paper.

Prior to the submissions due date, stakeholders may also request a meeting with AEMO to discuss the issues raised, and the requirements and processes proposed, in this Issues Paper.

Registered participants and other interested parties are invited to submit written responses on the questions identified in this Issues Paper and any other matters within the scope of the Guidelines, including the principles for developing and amending the Guidelines outlined in NER 3.10.1(b) and proposed in section 3.2 of this paper. Submissions must be made in accordance with the Notice of First Stage of Consultation published with this paper.

Note that there is a glossary of terms used in this Issues Paper 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. BACKGROUND

2.1 NER requirements

Under NER 3.10.1(a), AEMO is required to develop and publish and may amend wholesale demand response guidelines (the Guidelines), which set out:

- requirements determined by AEMO for classification of a load as a wholesale demand response unit (WDRU) in accordance with NER 2.3.6 or for aggregation in accordance with NER 3.8.3 and which AEMO reasonably considers necessary;
- 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(e) requires AEMO to comply with the Rules consultation procedures when making or amending the Guidelines.

In developing or amending the Guidelines, NER 3.10.1(b) requires AEMO 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.

2.2 Context for this consultation

On 11 June 2020, the Australian Energy Market Commission (AEMC) made a final rule (*National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9*) to facilitate wholesale demand response (WDR) in the National Electricity Market (NEM) through implementing a WDR mechanism (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 implementation date for the WDRM is 24 October 2021.[2] To allow registration and classification processes to commence ahead of this date, the transitional arrangements in NER 11.125.2 require AEMO to make and publish the Guidelines no later than four months before 24 October 2021, which is 24 June 2021.

[2] Note that many of the NER clause references in this paper are scheduled to commence on 24 October 2021.

As noted in section 1, the topics covered in this Issues Paper have been discussed with stakeholders at WDRG-TWG meetings on 11 August 2020 and 12 October 2020, and stakeholder feedback has informed the preparation of this paper. AEMO is planning to hold at least one further WDRG-TWG meeting during the submission period for this paper.

2.3 WDRM does not include all forms of demand-side participation

The final rule made by the AEMC 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]

In making its final determination, the AEMC acknowledged 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] The AEMC indicated that other customers may be able to provide demand response through other mechanisms, such as "through retailer-led demand response programs or providing emergency reserves through the reliability and emergency reserve trader".[5] It also noted that 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]

In developing the proposed processes and requirements outlined in this paper, AEMO has had regard to the requirements for loads participating in the WDRM to be controllable and predictable, in line with the AEMC's final rule determination.

[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*, p iii, https://www.aemc.gov.au/sites/default/files/documents/final_determination_-_for_publication.pdf.

[4] Ibid.

[5] Ibid.

[6] Ibid.

3. GUIDELINES SCOPE AND PRINCIPLES

The NER allow AEMO to set out in the Guidelines, other:

- information related to the supply of WDR, which is additional to the items in NER 3.10.1(a)(1)-(7) (NER 3.10.1(a)(8)) (Additional Information); and
- principles to which AEMO must have regard in developing or amending the Guidelines, which are additional to the items in NER 3.10.1(b)(1)-(2) (NER 3.10.1(b)(3)) (Additional Principles).

This section sets out AEMO's proposals in respect of these matters.

3.1 Additional Information

AEMO proposes to set out the following Additional Information in the Guidelines:

- explanation of how AEMO will assess the potential impacts of WDRU aggregation on power system security (see section 4.3);
- explanation of how AEMO will assess the MRC proposed by a DRSP (see section 7) in respect of:
  - a WDRU at a connection point (NMI-Level MRC); and
  - a WDR dispatchable unit ID (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 (see section 8).

When considering whether to include the Additional Information in the Guidelines, AEMO has considered the trade-off between flexibility and certainty, given that:

- the current consultation on the Guidelines may be impacted in terms of the indicative timeline for developing the Guidelines in Table 1; and
- the future amendments to the Guidelines require compliance with the Rules consultation procedures.

AEMO discussed the indicative timeline for development of the Guidelines with stakeholders at the 11 August 2020 meeting of the WDRG-TWG. Several stakeholders expressed a preference for the Guidelines to be finalised as soon as practicable (as per the timeline in Table 1).

AEMO has considered including other items of Additional Information in the Guidelines – specifically as to the BM metrics, baseline compliance testing processes and dispatch non-conformance assessment processes – but proposes not to include these matters in the initial Guidelines, as they are still under development (as at the date of publication of this Issues Paper) and would require the timeline in Table 1 to be extended. AEMO notes that these matters could be consolidated into the Guidelines in a future revision.

AEMO shared this proposed approach with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

3.2 Additional Principles

AEMO proposes 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; and
- the range of methods by which DRSPs may provide wholesale demand response.

These principles were discussed with stakeholders at the 11 August 2020 meeting of the WDRG-TWG:

- the first principle was proposed by AEMO. While there was some discussion of the proposed wording, no alternative wording was proposed; and
- the second principle was proposed initially by a stakeholder in the meeting.

Questions

- Question 3.1: Would stakeholders like the Guidelines to cover any Additional Information relating to the supply of WDR, having regard to the trade-offs between flexibility and certainty and the Guidelines development timeline in Table 1? If so, should this Additional Information be included in the initial Guidelines, or added through a future amendment?
- Question 3.2: To what extent do you agree with the proposed Additional Principles for developing and amending the WDR Guidelines?
- Question 3.3: Do stakeholders consider that AEMO should have regard to any other Additional Principles in developing or amending the Guidelines? If so, what are these and why?

4. CLASSIFICATION AND AGGREGATION OF WDRUS

The NER allow AEMO to stipulate additional requirements in the Guidelines for the classification of a load as a WDRU (NER 2.3.6(e)(7)) and for aggregation of WDRUs for the purpose of central dispatch (NER 3.8.3(b2)(4)). In addition, as noted in section 3.1, AEMO proposes that the Guidelines will include an explanation of how AEMO will assess potential impacts of WDRU aggregation on power system security. This section sets out AEMO's proposals in respect of these matters.

4.1 Conditions for classification of a load as a WDRU

Table 2 lists the conditions for classification of a load as a WDRU that AEMO proposes to include in the Guidelines. These conditions are additional to the requirements in NER 2.3.6(e) and, in some cases, clarify and reflect other NER requirements.

Table 2 Proposed additional conditions for classification of a load as a WDRU

Requirement	Rationale
5-minute metering must be available at the connection point	To facilitate settlement and dispatch conformance monitoring
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)
The load may not be represented by more than one NMI	NER 2.3.6(m)(1)(i)
The load may not be participating in RERT at the time of classification	NER 3.20.3(g)
The load may not be spot price exposed	NER 2.3.6(e)(2), 3.8.2A(d)

AEMO shared these proposed conditions with stakeholders at the 12 October 2020 meeting of the WDRG-TWG. Aside from a discussion of the AEMC's intention in applying limitations on WDR participation by loads that are spot price exposed, no other issues were raised.

4.2 Conditions for aggregation of WDRUs

AEMO has not identified any conditions for AEMO to approve applications for aggregation of WDRUs, in addition to the conditions listed in NER 3.8.3(b2), that it considers necessary for inclusion in the Guidelines.

However, NER 3.8.3(b3) allows AEMO to impose terms and conditions when approving an aggregation, which may include the circumstances in which AEMO may require aggregated WDRUs to be disaggregated. AEMO proposes that the Guidelines will describe circumstances that will be standard terms and conditions, which will include:

- changes to power system conditions such that power system security may be materially affected by the aggregation (see section 4.3 for more information on this assessment); and
- continuing dispatch non-conformance.

AEMO shared these positions with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

4.3 Assessment of power system security impacts

When assessing an application to aggregate two or more WDRUs for the purposes of central dispatch, NER 3.8.3(b2)(2) requires AEMO to be satisfied that power system security will not be materially affected by the proposed aggregation.

AEMO proposes to describe its assessment of power system security implications of aggregation in the Guidelines. This process will be similar to the existing process that AEMO uses for non-scheduled generating units with capacities between 5 MW and 30 MW.

AEMO proposes that the Guidelines will describe:

- the triggers for assessment, which will 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 and reports through which DRSPs can find information 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 (see also section 5.1); and
- the matters that AEMO will consider when assessing the power system security impacts of aggregation, which will include power quality, voltage stability and the potential need for constraints to manage network congestion.

As noted in section 4.2, AEMO also proposes that the Guidelines will describe standard terms and conditions that AEMO may impose when approving an aggregation, which are expected to include a description of changes to power system conditions that may lead to power system security being materially affected by the aggregation.

AEMO discussed this position with stakeholders at the 11 August 2020 and 12 October 2020 meetings of the WDRG-TWG.

- In response to a question about the need to consider the congestion impacts of WDR, AEMO explained it would be problematic if an aggregation straddled a binding network constraint. Where a network constraint binds, AEMO needs to be able to dispatch the WDR on the side of the constraint that would alleviate, not exacerbate, the congestion.
- It was suggested that the Guidelines should include a capacity threshold for this assessment, which has been proposed above. Stakeholders also discussed the incentive for DRSPs to keep the sizes of aggregations just below the threshold.

In addition to the responses provided at the meetings, AEMO notes that:

- it is possible that power quality constraints may need to be applied to some WDRUs during planned network outages, which limit the ability to aggregate them with other WDRUs elsewhere in a region; and
- it is expected that power quality and voltage stability will be the most restrictive limits in weaker areas of the power system; therefore, a thermal capacity threshold is not sufficient, on its own, to distinguish between aggregations that do or do not require assessment of power system security impacts.

Questions

- Question 4.1: Do stakeholders consider that any further requirements for classification or aggregation need to be stipulated in the WDR guidelines? If so, what are these and why?
- Question 4.2: What further information do stakeholders consider should be included in the Guidelines in relation to AEMO's assessment of the potential power system security impacts of WDRU aggregation? What is the rationale for including this further information?

5. TELEMETRY AND COMMUNICATIONS

This section sets out AEMO's proposed requirements for telemetry and communications for WDRUs. NER 2.3.6(e)(4) stipulates that, to approve the classification of a load as a WDRU, AEMO must be reasonably satisfied that a DRSP has adequate communications and/or telemetry in place to support the issuing of dispatch instructions. NER 3.10.1(a)(2) requires AEMO to set out information about the telemetry and communications requirements in the Guidelines, and NER 3.10.1(a)(3) requires that the Guidelines include the methodology for determination of any regional 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.

5.1 WDRU telemetry and communications requirements

Real-time visibility of the power system supports the central dispatch process and AEMO's role of maintaining power system security, particularly in the areas of constraint management, operational forecasting, and the diagnosis and remediation of power quality issues (where they intersect with AEMO's operational responsibilities). Specifically, AEMO uses real-time data from scheduled facilities (where it is deemed necessary) as an input to thermal network constraints and/or to correlate observed breaches of the technical envelope of the power system, such as a breach of voltage instabilities or power quality thresholds.

To the extent applicable, AEMO proposes that the telemetry and communications requirements for WDR will be consistent with those that apply for generating units, with the Guidelines to describe:

- that telemetry would be required:
  - for any individual WDRU with a NMI-Level MRC of 5 MW or greater;
  - for any 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);
  - where a DRSP has classified WDRUs that are within multiple DUIDs at or behind a transmission node (or a group of neighbouring transmission nodes if deemed necessary due to power system conditions), with an aggregate MRC of 5 MW or greater; and
  - for individual or aggregated WDRUs below the 5 MW threshold in respect of a NMI-Level MRC or DUID-Level MRC, as appropriate, in weaker areas of the power system where AEMO considers that telemetry is necessary to support the maintenance of power system security;
- the mechanisms and reports through which DRSPs can find information 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 (see also section 4.3);
- the processes for DRSPs to request exemption from the requirement to provide telemetry data and for AEMO to assess such a request; 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).

AEMO proposes that the Guidelines will refer to Power System Data Communications Standard,[7] which sets out technical requirements related to data quality, reliability and redundancy of data supply, security measures and interface information. AEMO notes that it is preparing to commence consultation on amendments to this standard and is targeting finalisation of these amendments by mid-2021.

AEMO shared these details of the proposed telemetry requirements with stakeholders at the 12 October 2020 meeting of the WDRG-TWG. Attendees questioned the specific purpose for telemetry data and

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

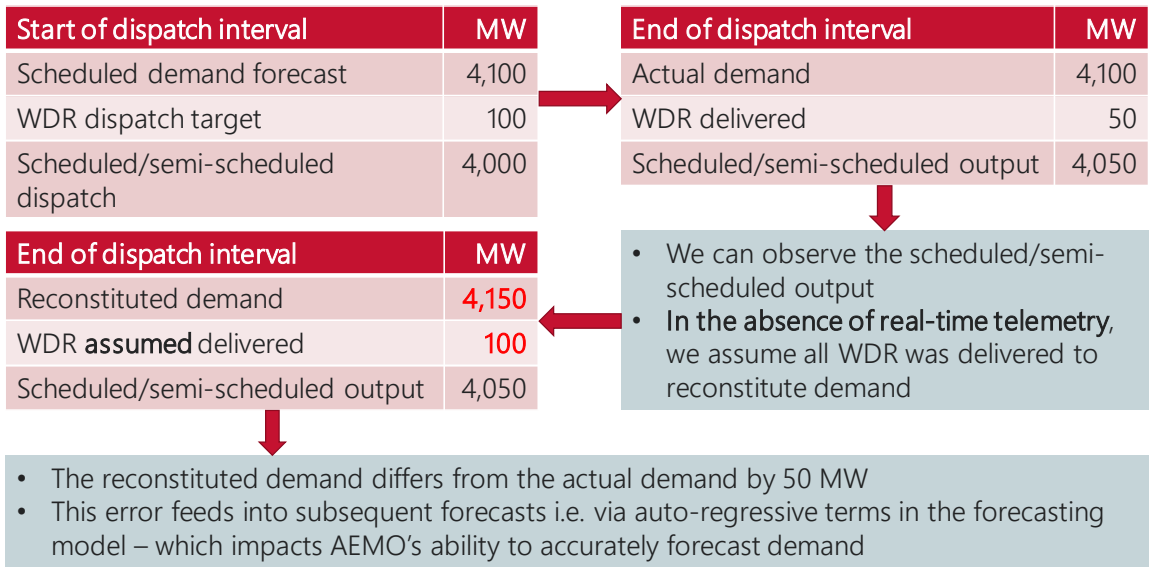
sought clarity on how weaker areas of the power system would be defined. AEMO indicated that it could provide information in the Guidelines about the way in which telemetry data would be used. AEMO advised that the parts of the grid located further away from synchronous generators, or in closer proximity to binding thermal network limits, were generally considered to be weaker areas of the power system, and advised that it could provide more information on this in the Guidelines.

5.2 Regional thresholds for increased visibility

While the WDR mechanism has been designed such that it does not extend to small customer loads, AEMO anticipates that many potential WDRUs will still be small enough (individually or as aggregated for the purposes of central dispatch) such that they do not trigger the requirements for real-time telemetry proposed in section 5.1. In the absence of any system security concerns, this will avoid the imposition of costly barriers to entry into the WDR mechanism for such loads.

While the lack of real-time visibility of each such load poses limited operational concern for AEMO, large volumes of non-telemetered WDR participation could, in aggregate, have a material impact on AEMO's operational forecasting processes. As illustrated in Figure 1, dispatch errors from non-telemetered WDR are likely to be misattributed in AEMO's operational forecasting process and will likely feed into subsequent forecasts. This 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, affect constraint implementation, and reduce market efficiency due to increased forecast uncertainty.

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



To manage these risks, AEMO proposes that it will initially set conservative values for the regional thresholds for non-telemetered WDR but allow these to be revised over time following observations of WDR dispatch performance and assessments of the impact on forecasting risk and uncertainty. To achieve this, AEMO proposes that the Guidelines will:

- describe the methodology for setting regional thresholds to include one or more parameters linked to observed dispatch performance; and
- describe 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 anticipates that it will 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 proposes that the methodology described in the Guidelines will 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. Indicative values for the initial thresholds are shown in Figure 2. To highlight the materiality of the thresholds, they are also displayed as a percentage of the three-year historical minimum demand observed during intervals with prices above $300/MWh.

Figure 2 Indicative initial regional thresholds for non-telemetered WDR

State	NSW	QLD	SA	TAS	VIC
Threshold	140	100	32	17	95
Max demand	13,814	9,862	3,125	1,684	9,613
Min demand (Threshold %)	6,129 (2.3)	5,145 (1.9)	596 (5.4)	766 (2.2)	3,591 (2.6)

Once the threshold for non-telemetered WDR in a region is reached, any additional WDRU that is classified will be required to meet the telemetry and communications requirements proposed in section 5.1, irrespective of the size or location of the WDRU. If the WDRU is part of an aggregation of WDRUs, the requirements will apply to the aggregation.

As required by NER 3.10.1(d), AEMO will publish monthly updates of the progress toward reaching the threshold in each region. Changes to the thresholds would also be published as part of this monthly update.

AEMO shared these details of the proposed methodology with stakeholders at the 12 October 2020 meeting of the WDRG-TWG. Aside from a discussion around conservatism in reliability forecasting, reliability standards and Retailer Reliability Obligation, no issues related to the proposed methodology were raised.

Questions

- Question 5.1: What information should the Guidelines include in relation to the process for seeking exemption from the requirement to provide telemetry data, and why?
- Question 5.2: Under the methodology for setting regional thresholds for non-telemetered WDR, what triggers do stakeholders consider would be appropriate for updating parameters and hence the thresholds (e.g. time-based, dispatch event-based), and why?

6. BASELINE PROCESSES

This section explains AEMO's proposed processes for the development of BMs, and for the application of a BM and related baseline settings to a WDRU. These matters must be included in the Guidelines in accordance with NER 3.10.1(a)(4) and (5).

As foreshadowed in AEMO's *Wholesale Demand Response: High-level Design* document,[8] AEMO anticipates that it will only develop and implement a single BM (potentially with some basic variants) for the commencement of the WDR mechanism, in order to minimise the cost and time to market. AEMO anticipates that it will be able to consider the addition of new BMs after the first summer of the WDR mechanism.

6.1 Developing a baseline methodology

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.

To facilitate AEMO's assessment of a proposed BM, AEMO proposes that the Guidelines will require a proponent to complete an application form developed by AEMO, providing:

- a detailed outline of the proposed BM calculation and any related baseline settings; and
- evidence of benefits (quantified where feasible) that may be realised through introduction of the proposed BM (e.g. evidence to demonstrate improved baseline compliance and/or increased WDR participation).

AEMO's proposed process for assessing and consulting on a proposal for a new BM is shown in Figure 3, including timeframes for the various stages. The full process would be followed where a proposal is submitted to AEMO by a Registered Participant. If AEMO initiates the development of a new BM, the process would commence at step 5.

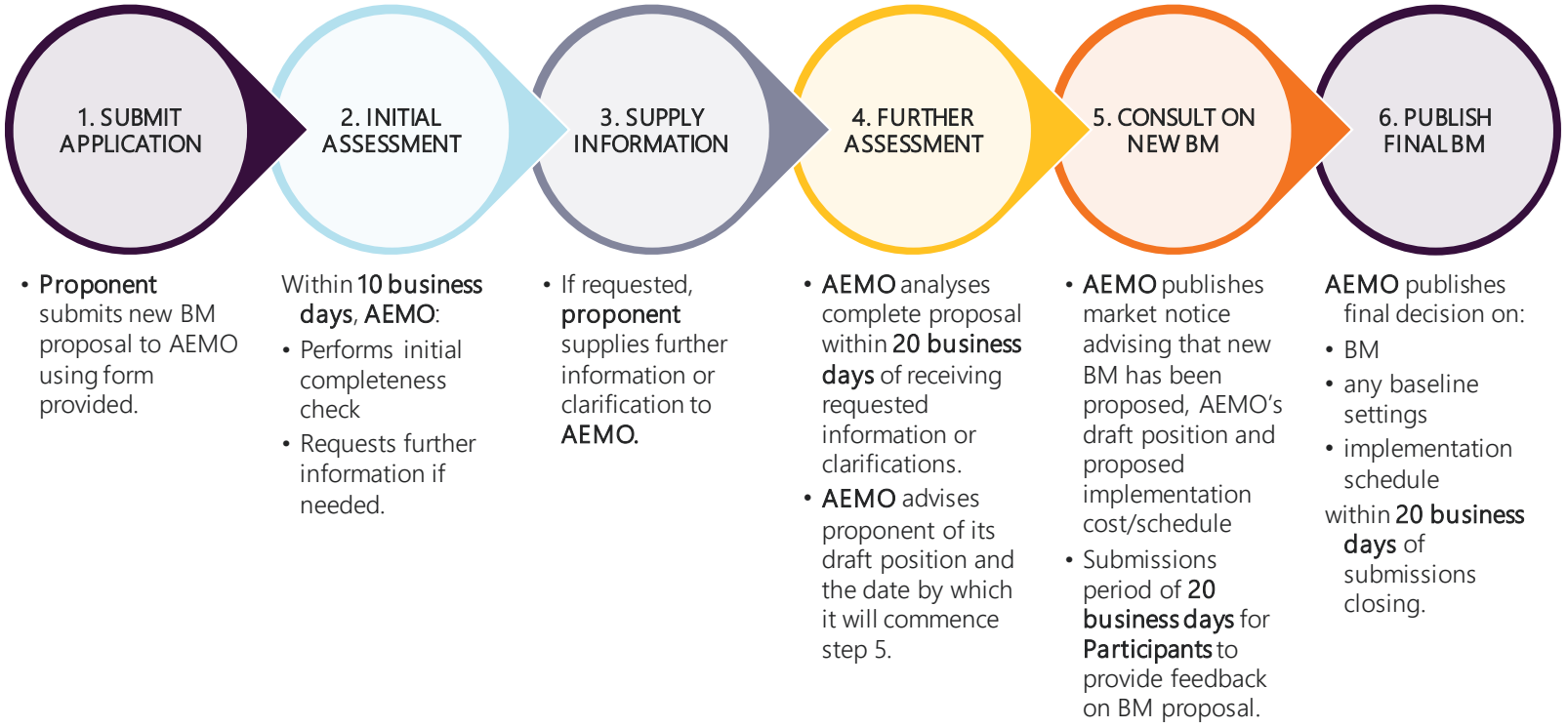
Given that any new BM will need to be implemented in AEMO's systems, that is, involve time for IT design and build, the proposed process includes estimation of the implementation cost and time. AEMO anticipates that the implementation time for a new BM may vary depending upon its complexity and similarity to any existing BMs. Consequently, AEMO proposes that the Guidelines will not set a deadline for the commencement of a new BM, instead requiring AEMO to transparently advise the proponent and other stakeholders of its proposed implementation plan.

AEMO also proposes to outline in the Guidelines the matters that it will have regard to when making its decision on whether to implement a new BM. In addition to the requirement in NER 3.10.3(c) (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), AEMO proposes that the decision will be based on AEMO's assessment of the relative costs and benefits of developing the new BM.

AEMO shared this proposed process with stakeholders at the 12 October 2020 meeting of the WDRG-TWG. Attendees raised questions around BM design and sought clarification around matters such as the potential for a BM to be commercial in confidence and the applicability of baselines to aggregated WDRUs. However, no issues were raised with this proposed process.

[8] Available at https://aemo.com.au/initiatives/submissions/wholesale-demand-response-mechanism-high-level-design, see section 2.2.3.

Figure 3 Proposed process for development of a new baseline methodology (BM)[9]



[9] One change has been made to this process since it was presented at the 12 October 2020 WDRG-TWG meeting. Step 4 has been augmented to include AEMO providing advice to the proponent of its draft position and to estimate the date by which it will publish the market notice and consultation materials in step 5. This will ensure sufficient time for AEMO to conduct its analysis of the proposed BM within 20 business days of receiving a complete application, and additional time to prepare consultation materials.

6.2 Applying a baseline methodology and settings to WDRU

The application of a BM and baseline settings to a WDRU will occur in two circumstances: at the time of classifying a load as a WDRU, or following a subsequent application from the DRSP to change the BM and/or baseline settings for the WDRU. A BM will be applied at the individual NMI (i.e. connection point) level, not to an aggregation of WDRUs.

AEMO proposes that the Guidelines will set out the following process for a DRSP to apply to AEMO for approval to apply a BM and baseline settings to its WDRU:

- Where a person is applying for registration as a DRSP, they will also need to apply to classify one or more loads as WDRUs at that time. This application will require the intending DRSP to nominate a BM and baseline settings – as provided in NER 2.3.6(b)(3) – from the register of BMs and baseline settings published by AEMO under NER 3.10.3(d). This nomination will be made in AEMO's DRSP registration application form.[10]
- Existing DRSPs will be provided with access to a new Portfolio Manager system, which was described in AEMO's *Wholesale Demand Response: High-level Design* document.[11] Where an existing DRSP wishes to classify a load as a WDRU, or to change the BM and/or baseline settings for one of its existing WDRUs, it will be able to submit the relevant application in the Portfolio Manager system. The application will include the DRSP's nomination of the BM and baseline settings that it wishes to apply to the WDRU.
- AEMO will assess whether the proposed BM and baseline settings enable the WDRU to satisfy the BM metrics. AEMO will approve the application if the metrics are satisfied.[12]

AEMO shared this proposed process with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

Questions

- Question 6.1: Do stakeholders consider that the proposed process and timing for development of BMs strikes an appropriate balance between flexibility and prudent management of implementation cost and time? Why or why not?
- Question 6.2: What further information do stakeholders consider should be included in the Guidelines in relation to the processes and timing for baseline development and application to WDRUs?

[10] This new application form is under development at the time of publishing this paper. Once available, it will be published at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration.

[11] Available at https://aemo.com.au/initiatives/submissions/wholesale-demand-response-mechanism-high-level-design.

[12] As noted in section 3.1, the BM metrics and baseline compliance testing processes are under development at the time of publication of this paper. These matters will be consulted upon and documented separately from the initial Guidelines but may be consolidated into the Guidelines in a future revision.

7. MAXIMUM RESPONSIVE COMPONENT

NER 3.10.1(a)(6) requires AEMO to describe in the Guidelines the process for a DRSP to apply to AEMO for approval to change the MRC of its WDRU. As indicated in section 3.1, AEMO proposes that process description in the Guidelines will be expanded to also include the initial assessment of the MRC at the time of classifying a load as a WDRU. This section explains AEMO's proposed processes for the application for, and approval of, the MRC for a WDRU.

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.[13] 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.

AEMO proposes that the Guidelines will 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:

- Submitting the application:
  - Where a person is applying for registration as a DRSP, they will also need to apply to classify one or more loads as WDRUs at that time. This will require the intending DRSP to nominate the NMI-Level MRC for each relevant load – as provided in NER 2.3.6(b)(2) in the DRSP registration application form.[14]
  - Existing DRSPs will submit applications to classify a load as a WDRU (which necessitates the nomination of the NMI-Level MRC) or to change the NMI-Level MRC for one of its existing WDRUs in the Portfolio Manager system.
  - Where a DRSP is applying to aggregate WDRUs, or to change the NMI-Level MRC for a WDRU that is within an existing aggregation, it will be able to indicate whether it would like the DUID-Level MRC value to be less than the aggregate of the NMI-Level MRCs. This indication will be provided either in the DRSP registration application form (if at the time of applying for registration as a DRSP) or via the Portfolio Manager system.
- Timeframe for assessing application:
  - For a nomination at the time of applying to classify a load as a WDRU or to aggregate WDRUs, AEMO will assess the proposed NMI-Level MRC or DUID-Level MRC within the existing timeframes for assessing the application for classification or aggregation.[15]
  - For an application to change the NMI-Level MRC of an existing WDRU, AEMO will determine whether further information is required within 5 business days, and will 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.

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

[14] This new application form is under development at the time of publishing this paper. Once available, it will be published at https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration.

[15] 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)), though there is no specific deadline for AEMO to approve or reject the application. For an application to aggregate WDRUs must assess the application and advise the applicant of the outcome within 20 business days (NER 3.8.3(e)).

- Information required in application:
  - To assess the proposed NMI-Level MRC, AEMO will require 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.
  - Where the WDRU will be aggregated with other WDRUs, the DRSP will also be able to nominate the DUID-Level MRC and provide an explanation for the nomination.
- Basis of AEMO decision:
  - AEMO will have regard to the information submitted with the application, metering data from the WDRU and previous dispatch performance (if applicable) when assessing the proposed NMI-Level MRC for the WDRU. This also applies where the WDRU will be aggregated with other WDRUs and the DRSP nominates a revised value for the DUID-Level MRC.
  - Where the WDRU will be aggregated with other WDRUs and the DRSP has not nominated a value for the DUID-Level MRC, AEMO will specify that the DUID-Level MRC equals the aggregate of the NMI-Level MRCs for the constituent WDRUs, 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.[16]

AEMO also proposes that the Guidelines will 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.

It will also be expected that a DRSP will, following a change in the NMI-Level MRC of one or more of its WDRUs, update its Demand Side Participation Information (DSPI) in accordance with the DSPI Guidelines. 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.[17]

AEMO shared this proposed process with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

Questions

- Question 7.1: What are the circumstances where an updated NMI-Level MRC or DUID-Level MRC should take effect earlier than proposed process?
- Question 7.2: What alternative approaches to adjusting the DUID-Level MRC may be appropriate and why?

[16] AEMO has adjusted this process since it was presented at the 12 October 2020 WDRG-TWG meeting, at which AEMO indicated that it would adjust the DUID MRC by the increase or decrease in the WDRU MRC. AEMO considers that such an approach may be impractical given that the WDRU MRC can be a decimal value but that the DUID MRC must be an integer value.

[17] Note that the timing and frequency of entries may change with future updates to the DSPI Guidelines. AEMO is consulting on amendments to the DSPI Guidelines at the time of publishing this Issues Paper. These amendments will include changes resulting from the introduction of the WDR mechanism. More information is available at https://aemo.com.au/en/consultations/current-and-closed-consultations/dspi-guidelines.

8. ACCESS TO BASELINE DATA

NER 3.10.1(a)(7) requires AEMO to describe in the Guidelines the arrangements for the provision of information about the MRC, BM and baseline settings applicable to the WDRU. This relates to the obligations in NER 7.15.6 for AEMO to provide baseline data to DRSPs and retailers, where baseline data encompasses the MRC, BM and baseline settings, and information about dispatch periods and quantities.

As indicated in section 3.1, AEMO proposes that the Guidelines will describe the arrangements for provision of baseline data, noting that this is broader than the minimum scope for the Guidelines under NER 3.10.1(a)(7).

This section describes AEMO's proposed arrangements for the provision of baseline data to the relevant DRSP and financially responsible market participant (FRMP).

8.1 Information confidentiality

In developing the proposed arrangements in section 8.2 for the provision of baseline data, AEMO has considered the various requirements in the NER for data confidentiality or publication. These include:

- NER 7.15.6(a), which stipulates that baseline data is confidential and must be treated as confidential information under the NER;
- NER 3.13.3(a), which stipulates that bid and offer validation data must be published; and
- NER 3.13.4(p) and (q), which require dispatch offers and bids, availabilities and details of dispatch instructions to be published on day D+1.

AEMO also notes that WDRUs will be able to participate in central dispatch either individually or aggregated, and that the MRC and dispatch data can exist both at the individual WDRU and the aggregated DUID level.

To balance these requirements, AEMO proposes that:

- MRC:
  - the DUID-Level MRC will be published with bid and offer validation data, with no NMI information; and
  - the NMI-Level MRC will be treated as confidential information.
- Dispatch data:
  - dispatch bids, dispatch intervals and dispatch instruction quantities at the aggregated DUID level will be published with other dispatch data; and
  - dispatch settlement quantities at the individual connection point/WDRU level will be treated as confidential information as per other settlement data.

AEMO shared this proposed approach with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

8.2 Arrangements for provision of baseline data

AEMO proposes that the Guidelines will include the arrangements for the provision of baseline data to DRSPs and retailers that are described in Table 3. For the DRSP, it is proposed that access to information about WDRU classification, MRC and BM/baseline settings will be provided through the Portfolio Manager system; and dispatch information will be sent via the Electricity Market Management System (EMMS). Retailers will be sent reports and notifications based on trigger events, supplemented by periodic summaries of the WDRU classifications of their NMIs.

Table 3 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 (see section 6.2)	Receive reports on NMIs that have been classified as WDRUs for which they are the FRMP Also 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[18]
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

It should be noted that AEMO will not be able to advise the retailer on day D+1 of the dispatch quantity for each individual NMI for which it is the FRMP. Dispatch instructions will be issued at the aggregated level (where applicable), and the DRSP will choose how it apportions a dispatch instruction between the constituent WDRUs, noting that these may be associated with different retailers.

Given this, it is proposed that the notification of dispatch that is provided to a retailer will 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.

AEMO shared this proposed approach with stakeholders at the 12 October 2020 meeting of the WDRG-TWG, who did not raise any objections.

Questions

- Question 8.1: What, if any, confidentiality issues could arise with the proposed approach to provision of WDRU-specific data? How would these occur?
- Question 8.2: What are the issues that could arise with dispatch data being provided to the retailer on day D+1?
- Question 8.3: For the periodic reports of WDRU classification data that AEMO proposes to provide to retailers, what frequency do stakeholders consider is appropriate and why?

[18] Note that AEMO publishes all dispatch offers and dispatch bids, and other dispatch data, on day D+1 in accordance with NER 3.13.4(p) and (q).

9. SUMMARY OF MATTERS FOR CONSULTATION

AEMO seeks comments and feedback on any of the matters raised in this paper, or any other matters that may be relevant to the development of the Guidelines. To assist stakeholders, the table below summarises the topics to be covered in the Guidelines and the questions posed in this document.

Table 4 Topics and associated questions

Topic	Related questions
Additional Information	Question 3.1: Would stakeholders like the Guidelines to cover any Additional Information relating to the supply of WDR, having regard to the trade-offs between flexibility and certainty and the Guidelines development timeline in Table 1? If so, should this Additional Information be included in the initial Guidelines or added through a future amendment?
Additional Principles	Question 3.2: To what extent do you agree with the proposed Additional Principles for developing and amending the WDR Guidelines? Question 3.3: Do stakeholders consider that AEMO should have regard to any other Additional Principles in developing or amending the Guidelines? If so, what are these and why?
Classification and aggregation of WDRUs	Question 4.1: Do stakeholders consider that any further requirements for classification or aggregation need to be stipulated in the WDR guidelines? If so, what are these and why?
Power system security impacts of aggregation	Question 4.2: What further information do stakeholders consider should be included in the Guidelines in relation to AEMO's assessment of the potential power system security impacts of WDRU aggregation? What is the rationale for including this further information?
Telemetry and communications requirements	Question 5.1: What information should the Guidelines include in relation to the process for seeking exemption from the requirement to provide telemetry data, and why?
Regional thresholds for increased visibility	Question 5.2: Under the methodology for setting regional thresholds for non-telemetered WDR, what triggers do stakeholders consider would be appropriate for updating parameters and hence the thresholds (e.g. time-based, dispatch event-based), and why?
Baseline processes	Question 6.1: Do stakeholders consider that the proposed process and timing for development of BMs strikes an appropriate balance between flexibility and prudent management of implementation cost and time? Why or why not? Question 6.2: What further information do stakeholders consider should be included in the Guidelines in relation to the processes and timing for baseline development and application to WDRUs?
Maximum responsive component	Question 7.1: What are the circumstances where an updated NMI-Level MRC or DUID-Level MRC should take effect earlier than proposed process? Question 7.2: What alternative approaches to adjusting the DUID-Level MRC may be appropriate and why?

Access to baseline data	Question 8.1: What, if any, confidentiality issues could arise with the proposed approach to provision of WDRU-specific data? How would these occur? Question 8.2: What are the issues that could arise with dispatch data being provided to the retailer on day D+1? Question 8.3: For the periodic reports of WDRU classification data that AEMO proposes to provide to retailers, what frequency do stakeholders consider is appropriate and why?

Submissions on these and any other matter relating to the proposed processes and requirements discussed in this Issues Paper must be made in accordance with the Notice of First Stage of Consultation published with this paper **by 5.00 pm (Melbourne time) on 27 November 2020**.

APPENDIX A - GLOSSARY

Term or acronym	Meaning
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
BM	Baseline methodology
DRSP	Demand Response Service Provider
DSPI	Demand Side Participation Information
DUID	Dispatchable Unit ID
EMMS	Electricity Market Management System
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
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
NER	National Electricity Rules
NMI	National Meter Identifier
SCADA	Supervisory Control and Data Acquisition
WDR	Wholesale Demand Response
WDRM	Wholesale Demand Response Mechanism
WDRG-TWG	WDR Guidelines Technical Working Group
WDRU	Wholesale Demand Response Unit