

WHOLESALE DEMAND RESPONSE GUIDELINES

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1. INTRODUCTION

1.1. Purpose and scope

These are the *wholesale demand response guidelines* (**Guidelines**) made under clause 3.10.1 of the National Electricity Rules (**NER**).

These Guidelines specify:

- requirements determined by AEMO for classification of a *load* as a *wholesale demand response unit* (**WDRU**);
- requirements determined by AEMO for aggregation of WDRUs;
- information about AEMO's assessment of whether *power system security* could be materially affected by an aggregation of WDRUs;
- 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* without telemetry and communications that may be *dispatched* at one time;
- 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, and information about AEMO's assessment of an application; and
- arrangements for the provision of *baseline data* applicable to the WDRU.

1.2. Development and amendment

When developing or amending these Guidelines, AEMO must have regard to the following principles:

- (1) the need not to distort the operation of the *market* (NER 3.10.1(b)(1));
- (2) the need to maximise the effectiveness of *wholesale demand response* at the least cost to end use consumers of electricity (NER 3.10.1(b)(2)); and
- (3) the need to ensure adequate *power system* operation, and the maintenance of *power system security* and reliability of *supply* (additional principle determined by AEMO under NER 3.10.1(b)(3)).

1.3. Definitions and interpretation

1.3.1. Glossary

Terms defined in the National Electricity Law (**NEL**) and the NER have the same meanings in these Guidelines, unless otherwise specified in this clause.

Defined terms in the NER are intended to be identified in these Guidelines by italicising them, but failure to italicise a defined term does not affect its meaning.

The words, phrases and abbreviations in Table 1 have the meanings set out opposite them when used in these Guidelines.

Table 1 Definitions

Term	Definition
AEMO	Australian Energy Market Operator Limited
Baseline Proponent	A <i>Market Participant</i> who submits an application, in accordance with section 4.1 of these Guidelines, for a new <i>baseline methodology</i> to be developed
BM	<i>Baseline methodology</i>
BM Register	The register of BMs and <i>baseline settings published</i> by AEMO in accordance with NER 3.10.3(d)
Consultation Notice	A notice to all <i>Registered Participants</i> and interested parties <i>published</i> by AEMO under section 4.1 Step 5 paragraph (a), advising of consultation in respect of a proposed BM
Decision Notice	A notice to all <i>Registered Participants</i> and interested parties <i>published</i> by AEMO under section 4.1 Step 6 paragraph (c), advising of a Final Decision in respect of a proposed BM
DNSP	<i>Distribution Network Service Provider</i>
DNSP Endorsement	The endorsement by a DNSP of an aggregation of WDRUs for the purpose of <i>central dispatch</i>
Draft Decision	AEMO's draft decision to either approve or reject a proposed BM under section 4.1 Step 4
Draft Report	A draft report <i>published</i> by AEMO under section 4.1 Step 5 paragraph (a), in respect of a proposed BM
DRSP	<i>Demand Response Service Provider</i>
DUID	<i>Dispatchable unit identifier</i>
DUID-Level MRC	The MRC of an aggregation of WDRUs
EMMS	Electricity Market Management System
Final Decision	AEMO's final decision to either approve or reject a proposed BM under section 4.1 Step 6
Final Report	A final report <i>published</i> by AEMO under section 4.1 Step 6 paragraph (c), in respect of a proposed BM
FRMP	<i>Financially responsible Market Participant</i>
Guidelines	These <i>wholesale demand response guidelines</i>
MRC	<i>Maximum responsive component</i>
NEL	National Electricity Law
NER	National Electricity Rules
NMI	National Metering Identifier
NMI-Level MRC	The MRC of a single <i>load</i> that has been classified as a WDRU
MW	Megawatt
Qualifying Interval	A <i>dispatch interval</i> in which WDRUs in a <i>region</i> for which no telemetry data is provided are <i>dispatched</i> to a level that is at least 25 per cent of the current Regional Threshold for that <i>region</i>
Regional Threshold	A threshold for a <i>region</i> of the total quantity of WDR for which no telemetry data is provided, in MW, that may be <i>dispatched</i> at one time, determined in accordance with section 3.2 of these Guidelines
WDR	<i>Wholesale demand response</i>
WDRU	<i>Wholesale demand response unit</i>

1.3.2. Interpretation

The following principles of interpretation apply to these Guidelines unless otherwise expressly indicated:

- (a) The NER and the NEL prevail over these Guidelines to the extent of any inconsistency.
- (b) These Guidelines have effect only for the purposes set out in the NER.
- (c) These Guidelines are subject to the principles of interpretation set out in NEL Schedule 2.
- (d) References to time are references to Australian Eastern Standard Time.
- (e) A reference to a clause is a reference to a clause of the NER.
- (f) A reference to a section is a reference to a section of this Guideline.

1.4. Related documents

Table 2 Related documents

Title	Location
AEMO electricity system guides	https://aemo.com.au/energy-systems/market-it-systems/electricity-system-guides
Application for Registration as a Demand Response Service Provider	https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration
Baseline Eligibility Compliance and Metrics Policy	https://aemo.com.au/consultations/current-and-closed-consultations/wdrm-becm-policy
BM Register	<i>[Location pending finalisation of document]</i>
<i>Congestion information resource</i>	https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource
Demand Side Participation Information Guidelines	https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach/forecasting-and-planning-guidelines/demand-side-participation-information-guidelines
Dispatch Data	Data communicated to AEMO to support the <i>central dispatch</i> process, as defined in the Power System Data Communications Standard.
<i>Integrated System Plan</i>	https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp
Power System Data Communications Standard	https://aemo.com.au/en/energy-systems/market-it-systems/nem-guides/power-systems
Power System Operating Procedure – Load Forecasting (SO_OP_3710)	https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures
WDR Dispatch Conformance Framework	<i>[Location pending finalisation of document]</i>

2. REQUIREMENTS FOR CLASSIFICATION AND AGGREGATION

2.1. Classification of a WDRU

NER 2.3.6(e) requires AEMO to approve the classification of a *load* as a WDRU if AEMO is reasonably satisfied that the *load* meets specified requirements, which include any requirements in these Guidelines.

In addition to the requirements listed in NER 2.3.6(e), AEMO must not approve the classification of a *load* as a WDRU unless it is reasonably satisfied that:

- (a) the *metering installation* at the *connection point* provides *settlement* data in five-minute intervals;
- (b) the *load* has not been classified as a WDRU or an *ancillary service load* by a different person;
- (c) the *load* is served through a single *connection point* and does not comprise electrical equipment that can be switched between multiple *connection points*;
- (d) the *load* is not subject to a *reserve contract* with AEMO at the time of the application to classify the *load* as a WDRU; and
- (e) the DRSP has declared to AEMO that it will provide an *available capacity* of zero for the *load* or, where the *load* is aggregated with other *loads*, the aggregated *loads*, in relation to any *trading interval* in which the *load* will be, or is likely to be, *spot price exposed*.

2.2. Aggregation of WDRUs

2.2.1. Additional conditions for aggregation of WDRUs

NER 3.8.3(b2) requires AEMO to approve the aggregation of two or more WDRUs for the purpose of *central dispatch* if specified conditions are met, which include the additional requirements stipulated in these Guidelines.

In addition to the requirements listed in NER 3.8.3(b2), AEMO must not approve an application to aggregate WDRUs unless it is reasonably satisfied that:

- (a) all of the WDRUs within the proposed aggregation are contained within a single load forecasting area specified in Appendix D of the Power System Operating Procedure – Load Forecasting (SO_OP_3710); and
- (b) where:
 - (i) the application would add one or more WDRUs to an aggregated DUID; and
 - (ii) 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, either:
 - (iii) the proposed aggregation has been endorsed by the DNSPs in respect of the WDRUs in the proposed aggregation (**DNISP Endorsement**); or
 - (iv) the application submitted under NER 3.8.3(a2) to aggregate WDRUs includes evidence that:
 - (A) the applicant had applied to the relevant DNSP(s) to seek DNISP Endorsement at least 25 business days earlier; and

- (B) the DNSP(s) had not provided the DNSP Endorsement, by the time that AEMO is required to approve or reject the application,

in which case AEMO will approve or reject the aggregation request in the absence of the completed DNSP Endorsement, in order to meet the relevant time requirement.

2.2.2. Standard terms and conditions for aggregation of WDRUs

Under NER 3.8.3(b3), AEMO has determined to impose on the relevant DRSP the following standard terms and conditions:

- (a) The DUID-Level MRC will be specified, where the DUID-Level MRC determined in accordance with section 5.2 is to be lower than the aggregate of the NMI-Level MRCs for the aggregated WDRUs, rounded down to the nearest whole MW.
- (b) AEMO may require aggregated WDRUs to be disaggregated where:
 - (i) following an update to the load forecasting area boundaries specified in Appendix D of the Power System Operating Procedure – Load Forecasting (SO_OP_3710), the aggregation includes loads on either side of one or more load forecasting area boundaries;
 - (ii) AEMO determines that it must represent the WDRUs within the aggregation as two or more dispatchable units in *constraints* used in *central dispatch* in order to maintain *power system security*; or
 - (iii) AEMO determines, in accordance with the WDR Dispatch Compliance Framework, that one or more WDRUs within the aggregation should be disaggregated as a result of continuing *dispatch* non-conformance.

2.2.3. Power system security assessment for aggregation of WDRUs

To approve an aggregation of WDRUs, AEMO must be satisfied that "*power system security* must not be materially affected by the proposed aggregation" (NER 3.8.3(b2)(2)).

If this is the case, and the other conditions in NER 3.8.3(b2) and section 2.2.1 are satisfied, AEMO must approve the application to aggregate WDRUs. However, if AEMO determines that *power system security* would be materially affected by the proposed aggregation, the WDRUs will need to participate in *central dispatch* as two or more DUIDs to allow *constraints* to be applied in the *central dispatch* process. This is consistent with AEMO's responsibilities in respect of scheduled facilities under NER 4.3.1(i) and 4.3.1(j).

Subject to the composition of a proposed aggregation of WDRUs, the power system security impacts may need to be assessed by one or both of:

- AEMO, if one or more of the conditions in paragraph 2.2.3(a) are satisfied; and
- the DNSP(s) in respect of impacts within its distribution network(s), through the DNSP Endorsement, if paragraph 2.2.1(b) applies.

The assessment of the power system security impacts of a proposed aggregation will be as follows:

- (a) AEMO will conduct the assessment where it receives an application under NER 3.8.3(a2), in circumstances in which:
 - (i) the DUID-Level MRC for the proposed aggregation is 5 MW or greater; or
 - (ii) one or more WDRUs in the proposed aggregation are located in an area of the *power system* where existing *scheduled plant*.

- (A) needs to be curtailed to maintain *power system security*; or
 - (B) is forecast to be curtailed as a result of committed investments and works, or other changes in the *power system*,
for at least five hours per year.
- (b) AEMO will not approve an aggregation application if it determines that:
- (i) the WDRUs are not contained within a single load forecasting area specified in Appendix D of the Power System Operating Procedure – Load Forecasting (SO_OP_3710);
 - (ii) where paragraph 2.2.1(b) applies:
 - (A) the DNSP Endorsement is inconsistent with the application to aggregate WDRUs; or
 - (B) the DNSP Endorsement is no longer current; or
 - (iii) AEMO must represent the WDRUs within the proposed aggregation as two or more dispatchable units in *constraints* used in *central dispatch* in order to maintain *power system security*.
- (c) If AEMO does not approve an application, AEMO will advise the applicant of one or more alternative aggregations that it considers would not materially affect *power system security*, and any *constraints* that must be applied on the operation of those alternative aggregations to maintain *power system security*.
- (d) Further information that may affect AEMO's ability to approve an application is available from:
- (i) the *Integrated System Plan*;
 - (ii) the *congestion information resource*;
 - (iii) *Transmission Annual Planning Reports*;
 - (iv) *Distribution Annual Planning Reports*; and
 - (v) the relevant *Network Service Provider*.

3. REQUIREMENTS FOR TELEMETRY AND COMMUNICATIONS

3.1. Scope, exemptions and data/standards

Scope

- (a) The requirements in this section 3 apply to:
- (i) any individual WDRU with a NMI-Level MRC of 5 MW or greater;
 - (ii) WDRUs classified by a DRSP at or behind a single transmission node with an aggregate NMI-Level MRC of 5 MW or greater, regardless of whether or how the WDRUs are aggregated; or
 - (iii) individual or aggregated WDRUs below the 5 MW threshold in respect of a NMI-Level MRC or DUID-Level MRC, as applicable, located in an area of the *power system* where existing *scheduled plant*:
 - (A) needs to be curtailed to maintain *power system security*; or

- (B) is forecast to be curtailed as a result of committed investments and works, or other changes in the *power system*,
for at least five hours per year.

Exemptions

- (b) A DRSP applying to classify a *load* as a WDRU, to whom paragraph (a) applies, may apply to be exempt from the requirements in this section 3.
- (c) AEMO will decide whether to exempt a DRSP from the requirements in this section 3, in deciding whether to approve the classification of a *load* as a WDRU under NER 2.3.6(e).
- (d) AEMO may approve an exemption application under paragraph (b) where AEMO is reasonably satisfied that telemetry data is not required to support adequate *power system* operation.

Data and standards

- (e) Where a DRSP is required to provide data, the DRSP:
- (i) must provide the mandatory data, and may provide the optional data, in Appendix A; and
 - (ii) must comply with the Power System Data Communications Standard, when transmitting data to AEMO.
- (f) The data in Appendix A is Dispatch Data for the purposes of the Power System Data Communications Standard.

3.2. Methodology for determining Regional Thresholds

NER 3.10.1(c) enables AEMO to determine 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 has been reached.

AEMO has decided not to determine a threshold under NER 3.10.1(c).

Instead, AEMO will determine a threshold for each *region* – being the maximum total quantity of WDR, in MW, that may be *dispatched* at one time, for which no telemetry data is provided – which will be applied as a *dispatch constraint*, pursuant to NER 3.8.1(a), 3.8.1(b)(4), 4.3.1(i), 4.3.1(j) and 4.3.2(a) (**Regional Threshold**).

Initial Regional Thresholds

- (a) AEMO will determine and *publish* on its website an initial value for the Regional Threshold to apply in each *region*.
- (b) This initial value will apply until AEMO has published a revised Regional Threshold under paragraph (g), but not after this publication.

Triggers for revising a Regional Threshold

- (c) AEMO will consider revisions to Regional Thresholds monthly.
- (d) Subject to paragraph (e), AEMO will revise the Regional Threshold in a *region* if:
- (i) the current Regional Threshold has applied for at least three months;

- (ii) 50 Qualifying Intervals have occurred in the *region* since the Regional Threshold was last revised; and
- (iii) 100 Qualifying Intervals have occurred in the *region*.
- (e) AEMO may pause the revision of a Regional Threshold if:
 - (i) AEMO initiates an amendment to these Guidelines that would be expected to result in the Regional Threshold being lowered from the current Regional Threshold; or
 - (ii) both:
 - (A) the aggregate of the NMI-Level MRCs of WDRUs in that *region* for which no telemetry data is provided exceeds the Regional Threshold; and
 - (B) the methodology in paragraph (g) would result in a further reduction of the Regional Threshold.

Revision of a Regional Threshold

- (f) AEMO will determine and publish, and may revise from time to time, a value, Err_{max} , for each *region*, being the maximum error tolerance in the measure of reconstituted (underlying) demand at which forecasting accuracy (in *central dispatch* and *pre-dispatch*) is not materially affected, expressed in MW.
- (g) Where paragraph (d) applies without being subject to paragraph (e), AEMO will revise a Regional Threshold according to the timing specified in paragraph (c), using the following formula:

$$RT_{new} = RT_{current} \times \max \left[1 - g_{max}, \min \left(1 + g_{max}, \frac{Err_{max}}{SE_t^{(p)}} \right) \right]$$

where:

- RT_{new} = the revised Regional Threshold for the *region*;
- $RT_{current}$ = the current Regional Threshold for the *region* that is *published* on AEMO's website;
- g_{max} = 10 per cent, being the maximum change to a Regional Threshold in a single revision;
- Err_{max} = the value determined and published in accordance with paragraph (f);
- SE_t = the scaled regional *dispatch* error in *dispatch interval t*, in MW, determined by multiplying the absolute value of the observed *dispatch* error with the ratio between $RT_{current}$ and the aggregate NMI-Level MRC for WDRUs *dispatched* in the *region* that are not providing telemetry data;
- $SE_t^{(p)}$ = the *p*th percentile value of SE_t within the set of Qualifying Intervals selected in accordance with paragraph (h); and
- p = 99.

- (h) The calculation of SE_t and $SE_t^{(p)}$ in paragraph (g) will be based upon:
 - (i) all Qualifying Intervals for which *settlement* has occurred within the last 12 months; or

- (ii) where there have been fewer than 100 Qualifying Intervals within the last 12 months, the most recent 100 Qualifying Intervals.

Publication

- (i) At least once per month, AEMO will *publish*:
 - (i) the Regional Threshold for each *region*, with any revised Regional Threshold for a *region* determined under paragraph (g) to replace the previous Regional Threshold for that *region*; and
 - (ii) the total quantity of WDR for which no telemetry data is provided, in MW, that has been classified in each *region*.

4. DEVELOPMENT AND APPLICATION OF BASELINE METHODOLOGIES

4.1. Baseline methodology development process

The process for the development of new BMs is shown schematically in Figure 1 and described in further detail in the sections below.

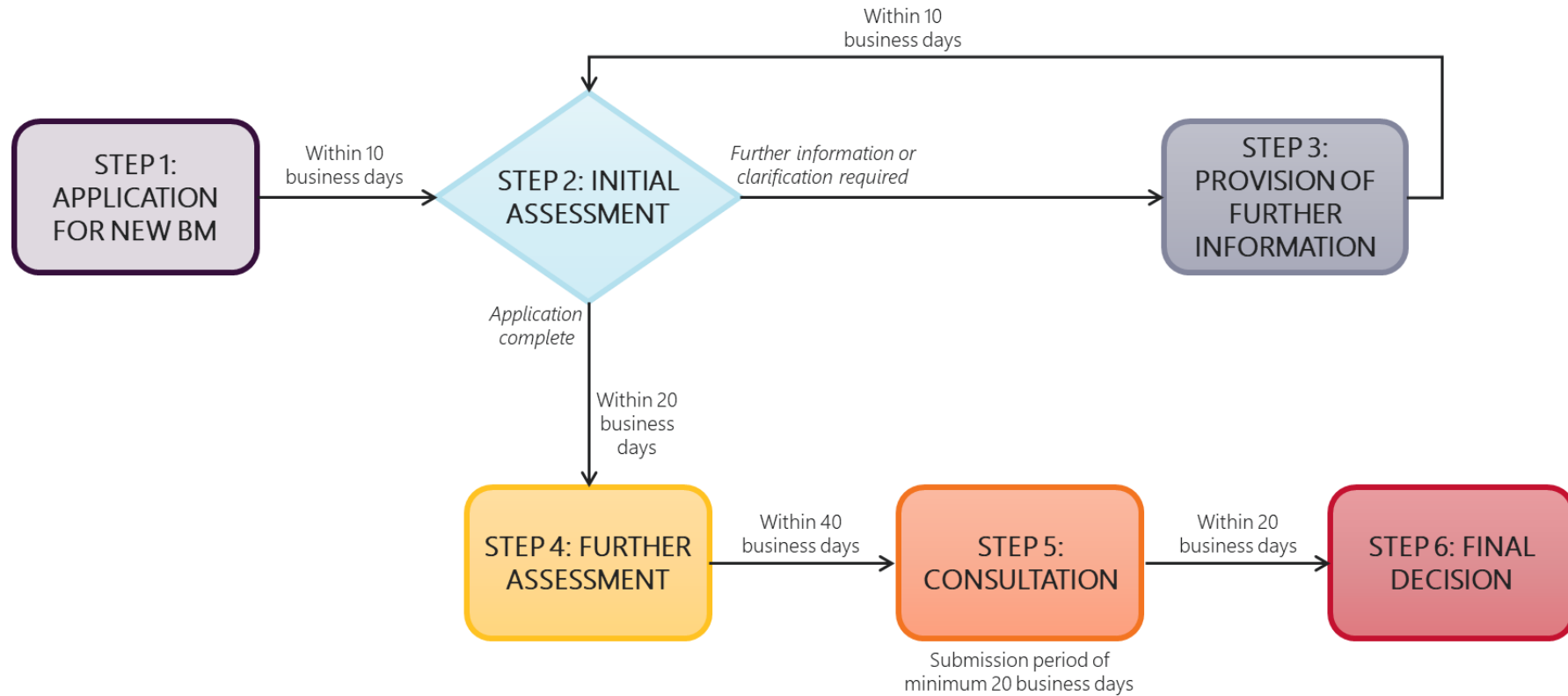
The process for development of a BM proposed by:

- a *Market Participant* will begin at Step 1; and
- AEMO will begin at Step 5.

For the purpose of this section 4, BM includes:

- a *baseline methodology*; and
- any *baseline settings* to be specified within the *baseline methodology*.

Figure 1 Process for development of a new baseline methodology (BM)



Step 1: Application for new baseline methodology

- (a) AEMO will *publish* on its website a list of the information that must be provided in an application by a *Market Participant* (**Baseline Proponent**) to propose a new BM to AEMO.
- (b) A *Market Participant* may propose that AEMO should develop a new BM by submitting the list of information *published* under paragraph (a) to AEMO, at any time on or after 1 April 2022.
- (c) The list of information *published* under paragraph (a) will include:
 - (i) a detailed outline of the proposed BM calculation; and
 - (ii) evidence of benefits (quantified where feasible) that may be realised through development of the proposed BM, including evidence in the form of data to demonstrate improved *baseline* performance and/or increased WDR participation.

Step 2: Initial assessment

Within 10 *business days* of receiving an application under Step 1(b), or any further information or clarification provided under Step 3, AEMO will review the information provided and advise the Baseline Proponent:

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

Step 3: Provision of further information

- (a) If AEMO requests a Baseline Proponent to provide further information or clarification under Step 2(a), the Baseline Proponent should provide this information as soon as practicable in the form and manner requested by AEMO.
- (b) Upon receipt of the further information or clarification, AEMO will repeat the initial assessment under Step 2.
- (c) If the further information or clarification requested pursuant to Step 2(a) is not provided to AEMO's satisfaction within 15 *business days* of the request, then the Baseline Proponent will be deemed to have withdrawn the application.

Step 4: Further assessment

- (a) Within 20 *business days* of advising a Baseline Proponent under Step 2(b) that its application is complete, AEMO will analyse the proposed BM and provide to the Baseline Proponent:
 - (i) AEMO's estimate of the cost and time that would be required to develop the proposed BM in AEMO's systems;
 - (ii) AEMO's estimate of the benefits to end consumers of electricity that may be realised through development of the proposed BM, which may include:
 - (A) reduced compliance costs arising from improved baseline compliance; and
 - (B) lower spot prices arising from increased WDR participation;
 - (iii) the date by which AEMO will *publish* the notice described in Step 5, which will be within 40 *business days* of this notification;
 - (iv) the date by which AEMO will *publish* its final decision under Step 6; and
 - (v) AEMO's draft decision to either approve or reject the proposed BM (**Draft Decision**).

- (b) AEMO's Draft Decision will be to approve a proposed BM if, in AEMO's reasonable opinion:
 - (i) the proposed BM can allow consistent results to be achievable when AEMO, a DRSP or any other person calculates a *baseline* for a WDRU using the proposed BM and the same set of *metering data* (NER 3.10.3(c)); and
 - (ii) the benefits to end consumers of electricity, estimated under paragraph (a)(ii), are likely to exceed AEMO's cost to develop the proposed BM in AEMO's systems, estimated under paragraph (a)(i).

Step 5: Consultation

- (a) AEMO will give a notice to all *Registered Participants* and interested parties containing the information listed in paragraph (b) (**Consultation Notice**), and will *publish* a draft report containing the information described in paragraph (c) (**Draft Report**):
 - (i) within 40 *business days* of providing a Baseline Proponent with AEMO's Draft Decision under Step 4; or
 - (ii) where AEMO proposes to introduce a new BM.
- (b) The Consultation Notice will:
 - (i) state that AEMO is consulting on the proposed development of a new BM;
 - (ii) state AEMO's Draft Decision on whether to approve or reject the proposed BM;
 - (iii) specify the date and time by which *Registered Participants* and interested parties may make written submissions (not to be less than 20 *business days* after the Consultation Notice); and
 - (iv) advise the location of the Draft Report.
- (c) The Draft Report will explain the Draft Decision, including AEMO's reasons and analysis.
- (d) AEMO may also *publish* additional analysis or models to support the Draft Decision.
- (e) To be valid, a submission must be received not later than the date and time included in the Consultation Notice.
- (f) AEMO will *publish* each submission received, unless the submitting party has advised that its submission is confidential.

Step 6: Final decision

- (a) After considering all valid submissions, AEMO will review and update (as applicable) its assessment of a proposed BM under Step 4(a).
- (b) AEMO's final decision (**Final Decision**) will be to approve a proposed BM if, in AEMO's reasonable opinion:
 - (i) the proposed BM can allow consistent results to be achievable when AEMO, a DRSP or any other person calculates a *baseline* for a WDRU using the proposed BM and the same set of *metering data* (NER 3.10.3(c)); and
 - (ii) the benefits to end consumers of electricity, estimated under Step 4(a)(ii) or updated under Step 6(a), are likely to exceed AEMO's cost to develop the proposed BM in AEMO's systems, estimated under Step 4(a)(i) or updated under Step 6(a).
- (c) Within 20 *business days* of the due date for submissions under Step 5(b)(iii), AEMO will *publish*:

- (i) a notice to all *Registered Participants* and interested parties containing the information listed in paragraph (d) (**Decision Notice**); and
 - (ii) a final report (**Final Report**) containing the information described in paragraph (e).
- (d) The Decision Notice will:
- (i) state the Final Decision to approve or reject the proposed BM;
 - (ii) if the Final Decision is to approve the proposed BM, state AEMO's estimate of the date by which the proposed BM will be developed and able to be applied to a WDRU; and
 - (iii) advise the location of the Final Report.
- (e) The Final Report will explain the Final Decision, including AEMO's reasons and analysis.
- (f) AEMO may also *publish* additional analysis or models to support the Final Decision.

4.2. Application of a baseline methodology to a WDRU

- (a) A person who applies to classify a *load* as a WDRU concurrently with an application for registration as a DRSP must nominate a BM and related *baseline settings* to apply to the proposed WDRU in the relevant application form available from AEMO's website.
- (b) A DRSP applying to classify a *load* as a WDRU must nominate a BM and related *baseline settings* to apply to the proposed WDRU in the application form for WDRU classification within the Portfolio Manager system.
- (c) A DRSP may apply to change the BM and related *baseline settings* that apply to a WDRU by submitting the relevant application form within the Portfolio Manager system. The form will require the DRSP to nominate a future *trading day* from which it wishes the nominated BM and related *baseline settings* to apply to the WDRU.
- (d) A DRSP, or an applicant for registration as a DRSP, may only nominate a BM and related *baseline settings* from the BM Register.
- (e) AEMO will approve the application to apply the nominated BM and related *baseline settings* to a WDRU if the nominated BM and related *baseline settings*, when applied to the WDRU (or proposed WDRU), produce a *baseline* that satisfies the *baseline methodology metrics*. AEMO's assessment will be in accordance with the Baseline Compliance and Metrics Policy.
- (f) AEMO will approve or reject a nomination under paragraph (a) or (b) within the timeframe for assessing the application to classify the load as a WDRU and will advise the DRSP of the outcome. The approved BM and related *baseline settings* will apply to the WDRU from the date that it is classified.
- (g) AEMO will approve or reject an application under paragraph (c) within 5 *business days* and will advise the DRSP of the outcome through the Portfolio Manager system. The approved BM and related *baseline settings* will apply to the WDRU from the first *trading interval* of the *trading day* that is the later of:
 - (i) the next *trading day*; and
 - (ii) the *trading day* nominated by the DRSP in its application under paragraph (c).

5. CHANGING THE MAXIMUM RESPONSIVE COMPONENT OF A WDRU

5.1. NMI-Level MRC

Nomination

- (a) A person who applies to classify a *load* as a WDRU concurrently with an application for registration as a DRSP must nominate the NMI-Level MRC for the proposed WDRU, and provide an explanation for its nomination, in the relevant application form available from AEMO's website.
- (b) A DRSP applying to classify a *load* as a WDRU must nominate the NMI-Level MRC for the proposed WDRU, and provide an explanation for its nomination, in the application form for WDRU classification within the Portfolio Manager system.
- (c) A DRSP may apply to change the NMI-Level MRC for a WDRU by submitting the relevant application form within the Portfolio Manager system. The form will require the DRSP to nominate a future *trading day* from which it wishes the nominated NMI-Level MRC to apply to the WDRU.
- (d) A nomination of the NMI-Level MRC must be in MW, and must be:
 - (i) a whole number, if the WDRU will not be aggregated with other WDRUs; or
 - (ii) provided to a resolution of 0.001 MW, if the WDRU will be aggregated with other WDRUs.
- (e) If not already provided to AEMO, a nomination under paragraph (a), (b) or (c) must include:
 - (i) the NMI; and
 - (ii) an explanation of how WDR will be provided from the *load*.

Initial review

- (f) Within 5 *business days* of receiving an application under paragraph (c), or any further information provided under paragraph (g), AEMO will review the application and advise the DRSP:
 - (i) of any further information or clarification which is required in support of its application, in AEMO's reasonable opinion; or
 - (ii) that AEMO considers the application to be complete.
- (g) If AEMO requests a DRSP to provide further information or clarification under paragraph (f), the DRSP should provide this information as soon as practicable, in the form and manner requested by AEMO.
- (h) Upon receipt of the further information or clarification, AEMO will repeat the review at paragraph (f).
- (i) If the further information or clarification requested pursuant to paragraph (f) is not provided to AEMO's satisfaction within 15 *business days* of the request, then the DRSP will be deemed to have withdrawn the application.

Assessment

- (j) As soon as reasonably practicable after advising a DRSP under paragraph (f) that its application is complete, and, in any event, within 15 *business days* of providing that advice,

- AEMO will approve or reject an application made under paragraph (c) and will advise the DRSP of the outcome through the Portfolio Manager system.
- (k) AEMO will approve the nomination of the NMI-Level MRC if it is reasonably satisfied that the quantity of WDR that can be provided by the *load* is at least equal to the NMI-Level MRC, having regard to:
 - (i) the information listed in paragraph (e);
 - (ii) *metering data* in respect of the *load*; and
 - (iii) previous WDR *dispatch* performance, if applicable.
 - (l) AEMO will approve or reject a nomination under paragraph (a) or (b) as part of its approval or rejection of the application to classify the load as a WDRU and will advise the DRSP of the outcome. The approved NMI-Level MRC will apply to the WDRU from the date that it is classified.
 - (m) Where a WDRU will be aggregated with other WDRUs, a NMI-Level MRC approved under paragraph (l) will apply to the WDRU from the first *trading interval* of the *trading day* that is the later of:
 - (i) the next *trading day*; and
 - (ii) the *trading day* nominated by the DRSP in its application under paragraph (c).
 - (n) Where a WDRU will not be aggregated with other WDRUs, a NMI-Level MRC approved under paragraph (l) will apply to the WDRU from the first *trading interval* of the *trading day* that is the later of:
 - (i) the *trading day* that commences six weeks after receipt of the application under paragraph (c); and
 - (ii) the *trading day* nominated by the DRSP in its application under paragraph (c), unless AEMO agrees for the DUID-Level MRC to apply from an earlier *trading day*.

5.2. DUID-Level MRC

Nomination

- (a) A person who applies to aggregate WDRUs concurrently with an application for registration as a DRSP may nominate the DUID-Level MRC for the proposed aggregation, and provide an explanation for its nomination, in the relevant application form available from AEMO's website.
- (b) A DRSP applying to aggregate WDRUs may nominate the DUID-Level MRC for the proposed aggregation, and provide an explanation for its nomination, in the application form for WDRU classification within the Portfolio Manager system.
- (c) A DRSP may apply to change the DUID-Level MRC for a WDRU, and provide an explanation for its nomination, by submitting the relevant application form within the Portfolio Manager system.
- (d) A nomination of the DUID-Level MRC must be a whole number, in MW.

Initial review

- (e) Within 5 *business days* of receiving an application under paragraph (c), or any further information provided under paragraph (f), AEMO will review the application and advise the DRSP:
 - (i) of any further information or clarification which is required in support of its application, in AEMO's reasonable opinion; or
 - (ii) that AEMO considers the application to be complete.
- (f) If AEMO requests a DRSP to provide further information or clarification under paragraph (e), the DRSP should provide this information as soon as practicable, in the form and manner requested by AEMO.
- (g) Upon receipt of the further information or clarification, AEMO will repeat the review under paragraph (e).
- (h) If the further information or clarification requested under paragraph (e) is not provided to AEMO's satisfaction within 15 *business days* of the request, then the DRSP will be deemed to have withdrawn the application.

Assessment

- (i) As soon as reasonably practicable after advising a DRSP under paragraph (e) that its application is complete, and, in any event, within 15 *business days* of providing that advice, AEMO will approve or reject an application made under paragraph (c) and will advise the DRSP of the outcome through the Portfolio Manager system.
- (j) If no nomination is provided for the DUID-Level MRC as part of an application to aggregate WDRUs, AEMO will set the DUID-Level MRC to the aggregate of the NMI-Level MRCs for the WDRUs, rounded down to the nearest whole MW, if it is reasonably satisfied that the quantity of WDR that can be provided by the aggregation is at least equal to the aggregate of the NMI-Level MRCs for the WDRUs, rounded down to the nearest whole MW, having regard to:
 - (i) *metering data* in respect of the *loads* within the proposed or existing aggregation; and
 - (ii) previous WDR *dispatch* performance, if applicable.
- (k) AEMO will accept a nominated DUID-Level MRC if it is reasonably satisfied that the quantity of WDR that can be provided by the aggregation is at least equal to the nominated DUID-Level MRC, having regard to:
 - (i) the explanation provided with the nomination;
 - (ii) *metering data* in respect of the *loads* within the proposed or existing aggregation; and
 - (iii) previous WDR *dispatch* performance, if applicable.
- (l) If AEMO considers that it cannot accept the DUID-Level MRC value assessed under either paragraph (j) or (k), it may determine a lower value for the DUID-Level MRC that it is reasonably satisfied could be provided by the aggregation.
- (m) AEMO will specify a DUID-Level MRC value that is accepted under paragraph (k) or determined under paragraph (l) within the terms and conditions related to the aggregation of WDRUs, in accordance with NER 3.8.3(b3).

- (n) AEMO will approve or reject a nomination under paragraph (a) or (b) as soon as reasonably practicable, and, in any event, within 20 *business days* of the date on which AEMO receives the application to aggregate WDRUs, under NER 3.8.3(a2), and will advise the DRSP of the outcome.
- (o) A DUID-Level MRC approved under paragraph (i) or (n) will apply to the WDRU from the first *trading interval* of the *trading day* that is the later of:
- (i) the *trading day* that commences six weeks after receipt of the application under paragraph (a), (b) or (c), as applicable; and
 - (ii) the *trading day* nominated by the DRSP in its application,
- unless the DUID-Level MRC is agreed to apply from an earlier *trading day* than the initially proposed *trading day*.
- (p) Where a DUID-Level MRC has changed, the relevant DRSP must:
- (i) resubmit any *dispatch bids* in respect of the relevant DUID; and
 - (ii) update its Demand Side Participation Information in accordance with the Demand Side Participation Information Guidelines.

6. ARRANGEMENTS FOR PROVISION OF WDRU-SPECIFIC INFORMATION

The arrangements for the provision of *baseline data* and other WDRU-related information to DRSPs, retailers and DNSPs are shown in Table 3.

The arrangements shown for DRSPs and *retailers* are in accordance with NER 7.15.6, which provides that *baseline data* is *confidential information* and specifies where the DRSP and *retailer* may access, or be provided with, *baseline data*.

The NER do not expressly provide for *baseline data* and other WDRU-related information to be provided to DNSPs. The arrangements shown for DNSPs are established in accordance with section 54G(1) of the NEL, which authorises AEMO to disclose protected information if the disclosure is necessary for the safety, reliability or security of:

- the supply of electricity; or
- the national electricity system.

AEMO has determined that the provision of information to DNSPs as set out in Table 3 is necessary to maintain the security of the supply of electricity and the national electricity system. DNSPs require this information to:

- proactively manage voltages and avoid voltage excursions outside system limits in the distribution network, using knowledge of WDRU location and potential response sizes; and
- avoid unintended consequences, such as breaches of equipment thermal limits, from distribution switching operations.

In Table 3:

- a DRSP is only entitled to receive data related to WDRUs for which it is the DRSP;
- a *retailer* is only entitled to receive data related to WDRUs for which it is the *financially responsible Market Participant (FRMP)*; and
- a DNSP is only entitled to receive data related to WDRUs that are connected to its *distribution network*, or that are aggregated with WDRUs that are connected to its *distribution network*.

Table 3 Arrangements for provision of baseline data and other WDRU-specific information

Data points	DRSP access	Retailer access	DNBP access
NMI WDRU classification	Access via Portfolio Manager system for all WDRUs where it is the DRSP	Receive periodic report providing details of all WDRUs for which it is the FRMP Receive change requests related to NMI WDRU classification via B2B e-Hub	Receive periodic report providing details of all WDRUs connected to its <i>distribution network</i> , or that are aggregated with one or more WDRUs connected to its <i>distribution network</i> Receive change requests related to NMI WDRU classification via B2B e-Hub
NMI mapping to DUID			
NMI-Level MRC			
DUID-Level MRC			
Maximum ramp rate			
BM and <i>baseline settings</i>			
<i>Dispatch bids</i>	Submit and access <i>dispatch bids</i> via EMMS	Access <i>dispatch bids</i> via EMMS (<i>published</i> in accordance with the <i>timetable</i>) for DUIDs containing one or more WDRUs for which it is the FRMP Access <i>dispatch bids</i> for all facilities on NEMWEB page on AEMO website ¹	Access <i>dispatch bids</i> for all facilities on NEMWEB page on AEMO website ¹
<i>Dispatch instructions</i>	Receive and access <i>dispatch instructions</i> via EMMS	Access <i>dispatch instructions</i> via EMMS (<i>published</i> in accordance with the <i>timetable</i>) Access <i>dispatch instructions</i> for all facilities on NEMWEB page on AEMO website ¹	Access <i>dispatch instructions</i> via EMMS (<i>published</i> in accordance with the <i>timetable</i>) Access <i>dispatch instructions</i> for all facilities on NEMWEB page on AEMO website ¹
Settlement quantities	Receive and access WDR <i>settlement</i> quantities via EMMS and through <i>settlement</i> statement process	Receive and access WDR <i>settlement</i> quantities via EMMS and through <i>settlement</i> statement process	Not provided

¹ <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/data-nem/market-data-nemweb>

APPENDIX A. TELEMETRY DATA CHANNELS

The mandatory and optional telemetry data channels are specified in Table 4. In this table:

- WDRU meter = meter on DRSP-controlled device
- Negative flow = Import to controlled device or connection point; Positive flow = Export from controlled device or connection point

Table 4 WDR telemetry data channels

Data channel	WDR MW	WDR Metered MW	WDR Baseline MW
Mandatory/ optional	Mandatory	Optional	Optional
Definition	<ul style="list-style-type: none"> • DRSP’s estimate of the quantity of WDR provided by a WDR DUID, representing the sum over all of the NMI connection points within the WDR DUID • No adjustment for distribution or transmission losses • WDR at each NMI connection point = Net metered active power flow at all DRSP-controlled devices behind the connection point MINUS Net baseline active power flow of those DRSP-controlled devices, assuming no WDR is occurring • Value should equal zero except during periods of dispatch, and during any early ramp down or extended return of load on either side of the dispatch period 	<ul style="list-style-type: none"> • Net metered active power flow at all DRSP-controlled devices behind each NMI connection point, summed over all NMIs within the WDR DUID • No adjustment for distribution or transmission losses • May differ from the settlement meter data, which is net of both WDR and non-WDR loads at each NMI 	<ul style="list-style-type: none"> • DRSP’s estimate of baseline net active power flow at all DRSP-controlled devices behind each NMI connection point, summed over all NMIs within the WDR DUID • Assumes no WDR is occurring • WDR Baseline MW = WDR Metered MW if WDR MW = 0 MW • To be determined consistently with the baseline methodology applied to each NMI within the WDR DUID • No adjustment for distribution or transmission losses • May differ from the settlement meter data, which is net of both WDR and non-WDR loads at each NMI
Dimensional units	MW	MW	MW
Minimum/maximum resolution	<ul style="list-style-type: none"> • Minimum: 0.001 MW • Maximum: 0.1 MW 	<ul style="list-style-type: none"> • Minimum: 0.001 MW • Maximum: 0.1 MW 	<ul style="list-style-type: none"> • Minimum: 0.001 MW • Maximum: 0.1 MW
Processing	Instantaneous	Instantaneous	Instantaneous

WHOLESALE DEMAND RESPONSE GUIDELINES



Data channel	WDR MW	WDR Metered MW	WDR Baseline MW
Quality flag	<p>Mandatory provision</p> <ul style="list-style-type: none"> Set to bad quality if the sum of all NMI MRCs associated with NMI WDRU meters that have failed or report bad quality measurements exceeds 25% of the DUID-Level MRC Set to bad quality if WDR Baseline MW or WDR Metered MW is bad quality (if these data channels are provided) 	<p>Mandatory, if this channel is provided</p> <ul style="list-style-type: none"> Set to bad quality if the sum of all NMI MRCs associated with NMI WDRU meters that have failed or report bad quality measurements exceeds 25% of the DUID-Level MRC 	<p>Mandatory, if this channel is provided</p> <ul style="list-style-type: none"> Set to bad quality if WDR Metered MW is bad quality
Validations	<ul style="list-style-type: none"> Must be a number Range: 0 to DUID-Level MRC + 20% 	<ul style="list-style-type: none"> Must be a number Range: Must be greater than or equal to 0 	<ul style="list-style-type: none"> Must be a number Range: <ul style="list-style-type: none"> Must be greater than or equal to 0 Must be greater than or equal to WDR Metered MW
Minimum update frequency	60 seconds	60 seconds	60 seconds