NATIONAL ELECTRICITY MARKET

BASELINE ELIGIBILITY COMPLIANCE AND METRICS POLICY

DRAFT REPORT AND DETERMINATION

Published: 18 March 2021

NOTICE OF SECOND STAGE CONSULTATION –

BASELINE ELIGIBILITY COMPLIANCE AND METRICS POLICY CONSULTATION

Date of Notice: 18 March 2021

This Notice informs all Registered Participants and interested parties (Consulted Persons) that AEMO is commencing the second stage consultation on the Baseline Eligibility Compliance and Metrics Policy (Policy) under clause 3.10.2 of the National Electricity Rules (NER), in accordance with NER 8.9.

Invitation to make Submissions

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

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so.

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

Closing Date and Time

Submissions in response to this Notice should be sent by email to wdr@aemo.com.au, to reach AEMO by 5.00pm (Melbourne time) on 8 April 2021.

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

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

Publication

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

EXECUTIVE SUMMARY

The publication of this Draft Report and Determination (Draft Report) commences the second stage consultation (Second Stage Consultation) by AEMO on the Baseline Eligibility Compliance and Metrics Policy (Policy) under clause 3.10.2 of the National Electricity Rules (NER).

On 11 June 2020, the Australian Energy Market Commission (AEMC) made the final rule (National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9) (Rule) to facilitate WDR in the National Electricity Market (NEM) through implementing the WDR mechanism (WDRM). The WDRM will be implemented on 24 October 2021.

The Policy:

- establishes the methodology by which AEMO will determine baseline eligibility and compliance under the WDRM; and
- sets out the thresholds for baseline compliance metrics.

On 18 December 2020, AEMO published the Issues Paper and draft Policy, through which AEMO aimed to facilitate informed industry feedback to AEMO on the draft Policy.

AEMO received six submissions in respect of the Issues Paper and draft Policy.

In response, AEMO made several changes to the draft Policy. The updated draft Policy:

- Clarifies that any baseline adjustment applicable to a particular baseline methodology will be applied when determining the baseline's relative root mean squared error (clause 2.5) and average relative error (clause 2.6).
- Clarifies that the bias threshold applies both as a negative and positive (Table 1, clause 2.7).
- Proposes a bias threshold of ±4% (Table 1, clause 2.7).
- Removes the word "minimum" with reference to "eligibility days" and "compliance days".
- Provides a non-exhaustive list of eligibility excluded days (clause 3.2.1) and compliance excluded days (clause 4.5.1).
- Outlines DRSP and AEMO responsibilities in respect of submitting and approving eligibility excluded days (clause 3.2.1) and compliance excluded days (clause 4.5.1).
- Clarifies the application of clause 4.7.2.2, which describes the process for DRSPs to use AEMO's Portfolio Management System to make a non-baseline compliant WDRU temporarily unavailable.
- Clarification the application of clause 4.7.2.3, which describes the process for AEMO to suspend a non-baseline compliant WDRU, if the DRSP does not make it unavailable.
- Inserts a new clause, clause 2.1 (h), to clarify explicitly that a WDRU can only be bid in and be dispatched and settled for days types associated with the baseline methodology assigned to the WDRU, such that a WDRU under a Business Day Baseline Methodology can only be bid in on a business day.

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

CONTENTS

1. STAKEHOLDER CONSULTATION PROCESS

AEMO is consulting on the Baseline Eligibility Compliance and Metrics Policy (Policy) in accordance with NER 8.9.

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

Deliverable	Indicative date
Issues Paper published	18 December 2020
Submissions due on Issues Paper	5 February 2021
Draft Report published	18 March 2021
Submissions due on Draft Report	8 April 2021
Final Report published	20 May 2021

The publication of the Draft Report marks the commencement of the Second Stage Consultation.

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

2. BACKGROUND

2.1. NER requirements

The Policy covers the requirements, under NER clause 3.10.2, that AEMO must determine and publish:

- The baseline methodology metrics, setting out the parameters for assessing the baseline produced by a baseline methodology when applied to a wholesale demand response unit (WDRU).
- The arrangements for regular and systematic testing, in relation to WDRUs, to determine whether baseline methodologies approved for application to WDRUs using applicable baseline settings produce baselines that satisfy the baseline methodology metrics (baseline compliance testing).
- The frequency with which baseline compliance testing will occur, which may be different for different WDRUs or classes of WDRU.

Once published, the Policy can be amended by AEMO without formal consultation.

2.2. Context for this consultation

In June 2020, the Australian Energy Market Commission (AEMC) released its final determination in respect of wholesale demand response (WDR) in the NEM, through the wholesale demand response mechanism (WDRM). Under the relevant amendments to the NER (WDRM Rule), consumers will be able to sell demand response in the wholesale market from 24 October 2021.

The WDRM Rule introduces a new market participant category, the Demand Response Service Provider (DRSP). A WDRU is a load used by a DRSP to provide WDR.

The draft Policy:

- establishes the proposed methodology by which EMO will determine baseline eligibility and compliance under the WDRM; and
- sets out the proposed thresholds for baseline eligibility and compliance metrics.

2.3. Baseline methodologies for WDRM implementation

At the commencement of the WDRM, DRSPs will have a choice of four baseline methodologies, which are differentiated by day type (Methodologies).

The Methodologies will be based on the CAISO "10 of 10" baseline methodology, with an on-the-day multiplicative[1] adjustment which is capped at ±20%. The adjustment window will comprise the trading intervals in the three hours ending one hour before the first WDR trading interval.

The four baseline methodologies will be differentiated by day type only:

i. Business days

ii. Non-business days

iii. All days

iv. Business + non-business days composite (combination of (i) and (ii)).

The Methodologies will be described in detail in the Baseline Methodology Register.

2.4. First stage consultation

AEMO issued the Notice of First Stage Consultation on 18 December 2020. The Issues Paper[2] and draft Policy set out the proposed methodology by which AEMO will determine baseline eligibility and compliance under WDRM and set out the proposed thresholds for baseline compliance metrics.

AEMO received five written submissions by the due date, from Green Energy Trading, the Public Interest Advocacy Centre, Infigen Energy, Enel X and ERM Power. AEMO also received a late submission from AGL.

AEMO discussed the development of the Policy extensively in the months preceding the First Stage Consultation at the WDR Technical Working Group and WDR Consultative Group meetings. By 5 February 2021, AEMO also had discussed the draft Policy in meetings with several individual stakeholders.

[1] Multiplicative adjustment is:
- the difference between the adjustment window consumption in the (unadjusted) baseline; and
- on the price event day, expressed and applied as a percentage of the baseline (either upward or downward), subject to the specified cap on the adjustment.

[2] https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdrm-becm-policy/first-stage/wdr-baseline-eligibility-compliance-metrics-policy-issues-paper.pdf?la=en

3. SUMMARY OF MATERIAL ISSUES

The key material issues arising from the proposal are summarised in the following table:

No.	Issue	Raised by
1.	Accuracy threshold	Multiple respondents
2.	Bias threshold	Multiple respondents
3.	Future changes to baseline metrics	Multiple respondents
4.	Alternative baseline methodologies	Multiple respondents
5.	Eligibility and compliance TIs window	Multiple respondents
6.	Eligibility/compliance excluded days	Multiple respondents
7.	Effect of the 20% accuracy threshold on demand forecasts	ERM Power
8.	Effect of the 20% accuracy threshold on the spot market	Multiple respondents
9.	Restricting bidding to baseline day type	AEMO

4. DISCUSSION OF MATERIAL ISSUES

4.1. Accuracy threshold

4.1.1. Issue summary and submissions

In the draft Policy, AEMO proposed that the accuracy threshold be set at 20%, with the view that the accuracy threshold should be as generous as possible, while ensuring sufficient baseline predictability, without leading to operational difficulties.

In response:

- Green Energy Trading stated that the baseline approach as proposed (with a target accuracy of 20%) will result in significant proportion of NMIs not being eligible to WDRM.
- Green Energy Trading concluded that the combined effect of baseline methodology, guideline requirements and site considerations will result in independent WRDU providers having significant difficulty in recruiting sufficient WDRU sites, to the point of non-viability, leaving vast amounts of peak demand reduction potential unrealized, with WDR largely left to the incumbent players and current practices.
- AGL observed that the baseline methodology has struck the right balance between ensuring eligible loads are sufficiently predictable to meet efficient dispatch within the spot market and opening the market to eligible NMIs to ensure appropriate capacity is available in the WDRM.
- AGL assessed the proposed accuracy thresholds as reasonable.
- Public Interest Advocacy Centre supported the 20% accuracy threshold.
- Infigen Energy supported the 20% accuracy threshold, noting that it is relatively high, but it increases participation markedly.
- Enel X stated that the 20% accuracy threshold will exclude a large proportion of loads at the outset, is likely to reduce the WDRM's effectiveness and runs counter to the WDRM's objective.
- Further, in Enel X' view, increasing the RRMSE threshold will mean more loads are eligible to participate. AEMO's concern that a higher accuracy threshold could lead to inefficient dispatch and increased uncertainty as to the amount of available WDR can be addressed by uncapped day-of

adjustments and a range of regulatory obligations, as well as financial and reputational incentives on DRSPs.

- ERM Power:
    - Strongly disagreed with the 20% accuracy threshold.
    - Stated that the 20% accuracy threshold ignores the AEMC's view in its final determination that the accuracy metric for WDR should better that for the RERT, is far too generous and imposes too many risks on electricity consumers to be justified.
    - Instead, proposed that a maximum 10% accuracy threshold, in line with the AEMC's original suggestion, is far more appropriate.

4.1.2. AEMO's assessment

RERT

The AEMC's final determination gives some direction as to the level of the baseline accuracy threshold for WDRM, by referencing the RERT. However, under the NER, AEMO defines the accuracy threshold. As outlined in the Issues Paper, RERT baseline accuracy is measured on an aggregated basis, but for WDRM, on a NMI basis. The aggregate error measurement will result in higher accuracy as errors at the NMI level are smoothed out. In contrast, at the NMI level, load can be more volatile, especially as the market moves to 5-minute settlement. Accordingly, the 20% accuracy threshold for WDRM is a stricter measure than the same threshold for RERT.

Predictability

In setting the accuracy threshold, AEMO aims to allow for sufficient baseline predictability, while allowing wide eligibility. AEMO acknowledges that the 20% accuracy threshold will result in a significant number of loads not meeting the eligibility criteria to participate in WDRM. However, WDRM is only one option in a suite of demand response choices which are available to market participants. Further, WDRM was not designed to accommodate every load. The AEMC determined that eligibility to participate in WDR is dependent on a load's predictability, such that a baseline can be established. AEMO determined that the 20% accuracy threshold provided sufficient predictability to participate in WDRM.

Accuracy vs eligibility

In AEMO's view, it is prudent to commence WDRM with an accuracy threshold which initially promotes higher levels of eligibility (while still achieving sufficient baseline predictability) to achieve greater overall benefits from WDRM. Accordingly, the aim is that a level of NMI participation can be achieved, where meaningful lessons may be learned about WDRM operation over the initial phases of the WDRM. AEMO can then adjust the accuracy threshold, if necessary. In contrast, if the accuracy thresholds are set to a level where NMI participation is limited, WDRM benefits may be curtailed.

Further, the accuracy threshold is used to gauge only whether a NMI can participate in WDRM, as calculated using past load data over a 20-50 day period (depending on the baseline methodology applicable) for a selected group of TIs. Once providing WDR, the NER mitigates inaccuracies in NMI baselines, including through the dispatch conformance process, as well as the cap on the amount payable to the DRSP for each WDRU, which is set at the maximum responsive component (MRC) of the relevant load.

4.1.3. AEMO's conclusion

AEMO notes that:

- Three submissions supported the proposed 20% accuracy threshold, as appropriately balancing baseline predictability and WDRM accessibility.
- Two submissions stated that the threshold was too low and would unnecessarily restrict eligibility.
- One submission concluded that the threshold was too generous, with a 10% threshold being more appropriate.

AEMO's approach to defining the accuracy thresholds was to consider the range of factors alongside baseline predictability, including the effect of the accuracy thresholds on WDRM participation, the uncertainties in respect of the WDRM as a new mechanism and the effects of 5 minute settlement on NMI eligibility.

Accordingly, in AEMO's view, the 20% accuracy threshold will allow for sufficient baseline predictability, without leading to operational difficulties, while allowing for maximum NMI participation. Therefore, the accuracy threshold remains at 20%, as in the draft Policy.

4.2. Bias threshold

4.2.1. Issue summary and submissions

In the draft Policy, AEMO proposed that the bias threshold be set at between 2% to 5%, with the view that the bias threshold should be as low as possible to minimise market distortion, without excluding too many potential participants.

In response:

- AGL considered that the proposed bias threshold appeared reasonable.
- Public Interest Advocacy Centre considered it sub-optimal for AEMO to aim to minimise the risk of inaccuracy or bias alone. Instead, AEMO should aim to co-optimise risk management with incentivising participation, to ensure that WDR delivers its intended benefits of lower wholesale prices, more efficient energy systems, and a faster transition to zero-emissions energy.
- Infigen Energy questioned the bias inclusion arguments, noting that bias is easily fixed, by reducing the demand forecast, as well as through a make-good adjustment/offset over time.
- Infigen Energy stated that bias should be calculated on both "all" periods, but also on "activated" periods, to ensure the absence of bias, when payments are being received for WDR.
- Infigen Energy considered that AEMO should develop clear procedures to assess variability and bias relative to the baseline on different timeslices, especially including non-activated and activated periods.
- Enel X concluded that a bias assessment is not clearly necessary, as day-of adjustments (if permitted in the baseline methodologies) tend to remove biases.
- Further, Enel X considered that a higher bias threshold of 5 per cent is preferable, to reduce the likelihood of loads being rendered ineligible by some random variation.

4.2.2. AEMO's assessment

Inclusion

The Policy is consistent with the principles in the NER which require AEMO to develop bias thresholds and assess NMI bias for eligibility and compliance. The bias threshold is not baseline-specific. Instead, it represents whether a baseline systematically over- or under-estimates the load at a connection point.

AEMO must ensure, in implementing WDRM, the satisfaction of its broader functions to maintain system security and manage the spot market, as well as being cognizant of the WDRM's impact on the WDRM's participants. AEMO's setting of baselines with appropriate bias thresholds to ensure predictability is a way of satisfying these obligations.

Calculation

The bias metrics for a NMI are calculated over a 20-50 day timeframe (depending on the BM used), in terms of determining NMI eligibility and compliance. The bias in terms of a NMI baseline is not calculated for settlement purposes. Further, NMI bias is not calculated for activated DR periods, with activated DR periods excluded from compliance bias calculations. While bias could be calculated on a variety of time slices, this would represent additional complexity for system build, with indeterminate benefits.

Threshold

The analysis undertaken for AEMO by consultants Oakley Greenwood showed low baseline bias for the NMI data analysed (with median bias scores under 1% for baseline methodologies tested). Accordingly, AEMO considers that the proposed range for bias threshold of ±2 to ±5% would not materially restrict NMI eligibility.

4.2.3. AEMO's conclusion

AEMO has updated the draft Policy to reflect the proposed bias threshold of ±4% (Table 1, clause 2.7). AEMO concludes that this threshold will allow for a level of "noise" in the baseline, but will not allow a baseline to be eligible for WDRM if it is systematically biased.

4.3. Future changes to baseline metrics

4.3.1. Issue summary and submissions

The NER allows AEMO to update the Policy, including the accuracy and bias thresholds. The suitability of the eligibility and compliance methodology as well as the metrics thresholds will be reviewed annually, starting in 2022. The review's purpose will be to ensure that:

- AEMO's baseline eligibility and compliance processes result in WDR participation only of loads which have accurate and unbiased baselines; and
- The demand response provided under the WDRM is real and additional.

In response:

- AGL stated that AEMO should provide guidance on how registered WDRUs could be affected by changes to accuracy/bias thresholds, such as whether grandfathering eligibility arrangements for registered WDRUs will apply.
- Infigen Energy sought the opportunity to analyse and review its portfolio to enable effective feedback to AEMO when the AEMO review is completed after the WDRM's first summer, as well as suggesting that market consultation should be undertaken, if changes are needed.
- ERM Power expressed concern that AEMO may be reluctant to lower the accuracy threshold in the future, in the face of strong resistance.

- Public Interest Advocacy Centre concluded that AEMO should monitor how the accuracy threshold is encouraging WDR to be provided and whether it is maximising benefits for consumers.

4.3.2. AEMO's assessment

AEMO encourages participants to provide AEMO with feedback on the WDRM at any time before or after the WDRM is implemented, including in respect of baseline metrics thresholds, whether through the various consultative forums, the formal consultation processes or direct contact with the operational team.

AEMO will review the baseline metric thresholds after the first summer of WDRM operation, after March 2022, to assess whether the appropriate balance has been achieved between NMI eligibility and baseline predictability. The accuracy or bias thresholds would be changed only after significant consultation, with sufficient lead times to allow DRSPs to inform customers and manage their contracts with DRSPs. If new thresholds were introduced, NMIs would need to meet the new thresholds for baseline compliance testing to continue participating in WDRM, with no grandfathering of eligibility arrangements.

4.3.3. AEMO's conclusion

AEMO will retain the position in the draft Policy.

4.4. Alternative baseline methodologies

4.4.1. Issue summary and submissions

DRSPs can choose among the Methodologies, as outlined in Section 2.3, as differentiated by day type, similar to RERT. The Methodologies will be outlined in the Baseline Methodology Register.

In submissions:

- Green Energy Trading proposed alternative approaches to the Methodologies, including in respect of temperature-sensitive loads.
- ERM Power stated that AEMO should focus on developing the Methodologies, including for temperature-sensitive loads like chillers, arguing that well-designed baselines with suitable accuracy and bias thresholds will enable new WDRUs to participate, without increasing the risks to the broader market.

4.4.2. AEMO's assessment

AEMO assesses that the proposal:

- Minimises cost and time to market.
- Aims to balance accuracy, simplicity, eligibility and integrity.
- Allows the development of future baseline methodologies, including in respect of temperature-sensitive loads, using the process in the WDR Guidelines,[3] as initiated by either AEMO or Market Participants.

4.4.3. AEMO's conclusion

AEMO will retain the position in the draft Policy.

[3] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

4.5. Eligibility and compliance TIs window

4.5.1. Issue summary and submissions

The eligibility/compliance TIs window:

- Refers to the trading intervals from which meter data is taken for the load, for the purpose of conducting baseline eligibility assessment or baseline compliance testing.
- Was proposed in the Issues Paper to be 10am to 8pm for all baseline methodologies.
- Informs the assessment of eligibility/compliance, although a NMI can bid in WDR for any trading intervals.
- Will be detailed in the Baseline Methodology Register.

In submissions:

- AGL stated that AEMO should consider whether the TI window should be defined more flexibly, as well as constrain when the WDRU may be dispatched.
- Enel X proposed a solution to enable a NMI to define a narrow set of TIs within which their eligibility is assessed, then restrict their market participation to those intervals only.
- Enel X sought clarification as to whether eligibility TIs were expressed in market time or local time, strongly suggesting that the eligibility and compliance assessments use local time.

4.5.2. AEMO's assessment

After publishing the Issues Paper, AEMO completed further analysis with consultants Oakley Greenwood on the baseline TI window, as well as its effects on eligibility. As a result, the eligibility and compliance TIs windows for the Methodologies will be updated from 10am to 8pm, as described in the Issues Paper, to 3pm to 8pm, which coincides with the high price period in the NEM. In AEMO's view, this will allow more NMIs to be eligible for WDRM. The Baseline Methodology Register, not the Policy, will reflect this update.

AEMO cannot offer further flexibility in the eligibility/compliance TIs window. Further, AEMO will not be able to restrict bidding to a particular TI window. This simplification was made to minimise cost and time to market.

However, in future, the potential exists for improvement, as well as development of additional baseline methodologies, including to offer alternative TI windows. The relevant process is described in the WDR Guidelines[4], at the initiation either of AEMO or Market Participants.

Further, AEMO has determined that using local time would bring additional complexity, without sufficient benefit to justify it. Accordingly, the Baseline Methodology Register will be updated to clarify that the eligibility and compliance windows use market time.

4.5.3. AEMO's conclusion

AEMO will retain the position in the draft Policy.

AEMO will update the Baseline Methodology Register, to reflect that the eligibility/compliance TIs window for the Methodologies will be 3pm to 8pm, market time.

[4] Draft version of the WDR Guidelines is available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

4.6. Eligibility/compliance excluded days

4.6.1. Issue summary and submissions

AEMO will determine, at its discretion:

- Eligibility excluded days, which are days on which NMI load was not measurable, or is determined to be far outside the usual for the NMI.
- Compliance excluded days, which are days on which WDRU load was not measurable, or is determined to be far outside the usual for the WDRU.

In submissions:

- Enel X preferred the Policy to more clearly define eligibility excluded days, to promote transparency, as well as to enable DRSPs to assess the likelihood of baseline eligibility, before applying to classify a load and conduct ongoing baseline compliance.
- The Public Interest Advocacy Centre was concerned that AEMO would determine, at its discretion, the eligibility excluded days for a NMI, suggesting instead that AEMO should set out specific types of events and circumstances that would result in a day being excluded.

4.6.2. AEMO's assessment

AEMO assesses that the Policy could reasonably include a non-exhaustive list of example eligibility/compliance excluded days. In any case, each submitted excluded day will have to be approved for use by AEMO, with clear reasoning for the request to be provided by the DRSP. AEMO would also explain to the DRSP why the excluded day is not approved, in that event.

AEMO considered that the use of exclusion days should be relatively infrequent, needing as it would to be balanced against the risk of gaming by participants. The over-use of exclusion days would suggest that a load is not suitable for WDRM.

4.6.3. AEMO's conclusion

AEMO amended the draft Policy to include a non-exhaustive list of eligibility excluded days (clause 3.2.1) and compliance excluded days (clause 4.5.1).

The Policy will also be amended to outline DRSP and AEMO responsibilities in respect of submitting and approving eligibility excluded days (clause 3.2.1) and compliance excluded days (clause 4.5.1).

4.7. Effect of the 20% accuracy threshold on demand forecasts

4.7.1. Issue summary and submissions

The WDRM Rule required that, when determining the baseline methodology metrics, AEMO must have regard to the level of accuracy achieved by AEMO's short-term demand forecasts and forecasts of intermittent generation, amongst other considerations.

In submissions:

- ERM Power stated that the 20% accuracy threshold ignores the fact that the NER requires the accuracy level to be consistent with that used by AEMO for demand and intermittent generation forecasts.
- ERM Power expressed concern that the 20% accuracy threshold is far too high, but that 10% would provide sufficient flexibility to participate, without the risk of distorting AEMO's demand forecasts.

4.7.2. AEMO's assessment

AEMO considered the relationship of the proposed accuracy threshold to AEMO's demand forecast for pre-dispatch and semi-scheduled generation. The error rates relevant for pre-dispatch demand forecasts are applied at an instantaneous, regional level, on a fixed MW basis, which is historically derived from percentage of demand. The error trigger threshold is fixed at 6MW for the conformance calculation for semi-scheduled generating units. This can be significantly lower or higher than 20%, depending on the unit's size. For WDRM, the accuracy metric is applied at a NMI level and is calculated using the RRMSE statistic (which is not the same as a simple % error statistic), as measured over a select number of TIs over the past 20-50 days (depending on baseline methodology).

AEMO does not consider that the error rates in these demand forecasts are directly comparable to the eligibility/compliance criteria, in terms of the accuracy threshold for WDRM. For WDRM accuracy measured at the NMI level, the error will always be higher than when it is aggregated to the regional level. Additionally, the use of an error percentage or a MW error threshold is not directly comparable to a RRMSE statistic.

With respect to the 6MW error trigger threshold, AEMO considers that for WDRM, a single NMI with a load of 30 MW or more will be rare, with smaller loads much more likely to participate. Accordingly, any error represented by the 20% accuracy threshold would likely be lower than the 6MW error trigger threshold for semi-scheduled plant.

AEMO will review WDRM, including the accuracy thresholds after the first summer of WDRM operation, that is after March 2022. The review's focus will be to assess whether the right balance has been achieved between NMI eligibility and baseline predictability, as well as to examine any effects of the threshold on AEMO's demand forecasts.

4.7.3. AEMO's conclusion

AEMO considered the relationship of the accuracy threshold to short-term demand forecasts and forecasts of intermittent generation. AEMO determined that the 20% accuracy threshold is unlikely to adversely affect AEMO's demand forecasts. Accordingly, AEMO will retain the position in the draft Policy. The draft Policy was updated to explicitly state that the annual review of the eligibility and compliance methodology and metrics will give consideration to the factors outlined in NER 3.10.2(f).

4.8. Effect of the 20% accuracy threshold on the spot market

4.8.1. Issue summary and submissions

The WDRM Rule requires that AEMO must have regard to the need to not distort the operation of the market, among other matters, when determining the baseline methodology metrics.

In submissions:

- ERM Power stated that allowing less accurate demand response to participate in the spot market (not the WDRM alone) distorts the spot market, with the potential to create far bigger risks to the entire market.
- AGL considered that the baseline methodology has achieved the appropriate balance between ensuring eligible loads are sufficiently predictable to meet efficient dispatch within the spot market and opening the market to eligible NMIs to ensure appropriate capacity is available in the DRM.

4.8.2. AEMO's assessment

AEMO considers that:

- the baseline accuracy metric is a way to limit the potential under- or over-payment of WDR, rather than under- or over-dispatch of WDR; and
- the accuracy threshold being set at 10% accuracy, as opposed to 20%, would have limited impact on the wider spot market.

Additionally, the NER mitigates any inaccuracies in NMI baselines, as well as their effect on the spot market, including the dispatch conformance process as well as the cap on the amount payable to the DRSP for each WDRU (capped at the MRC of the relevant load).

AEMO considers that the WDRM should commence prudently with an accuracy threshold that allows for wide eligibility, while achieving sufficient baseline predictability. In this regard, a level of NMI participation can be achieved where meaningful lessons can be learned about WDRM operation over the WDRM's initial phases. Accordingly, AEMO can adjust the accuracy threshold, if needed. If the accuracy thresholds are set to a level where NMI participation is limited, then the WDRM's benefits may be curtailed.

AEMO will review the WDRM, including the accuracy thresholds, after the first summer of WDRM operation, that is after March 2022. The review's focus will be to assess whether the appropriate balance has been achieved between NMI eligibility and baseline predictability, as well as to examine any effects of the accuracy threshold on the spot market.

4.8.3. AEMO's conclusion

AEMO does not consider that the 20% accuracy threshold will distort the spot market. Accordingly, AEMO will retain the position in the draft Policy. AEMO has updated the draft Policy to explicitly state that the annual review of the eligibility and compliance methodology and metrics will give consideration to factors outlined in NER 3.10.2(f).

4.9. Restricting bidding to baseline day type

4.9.1. Issue summary and submissions

The assessment of WDRU eligibility and compliance takes into account load data for the day types relevant to that particular baseline methodology, such that for a Business Day Baseline Methodology, the eligibility assessment and compliance testing is performed using load data for business days.

AEMO did not receive any submissions in this regard.

4.9.2. AEMO's assessment

A WDRU should only be bid in for days types associated with the baseline methodology which is assigned to the WDRU, given that eligibility assessment and compliance testing is performed by day type. The DRSP must ensure that it bids in the WDRU accordingly. AEMO will not settle any dispatch that occurs otherwise, such that, if a WDRU with a Business Day Baseline Methodology bids in on a non-business day, that WDR will not be settled.

4.9.3. AEMO's conclusion

The draft Policy includes the new clause 2.1 (h), which explicitly states that a WDRU can only be bid in and be dispatched and settled for days types which are associated with the baseline methodology that is assigned to the WDRU, such that a WDRU under a Business Day Baseline Methodology can only be bid in on a business day.

5. DRAFT DETERMINATION

AEMO's draft determination is to amend the Policy in the form in Attachment 1, in accordance with NER 3.10.2.

APPENDIX A. GLOSSARY

Term or acronym	Meaning
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator Limited
ARE	Average Relative Error
DRSP	Demand Response Service Provider
NEM	National Electricity Market
NER	National Electricity Rules
Policy	Baseline Eligibility Compliance and Metrics Policy
RRMSE	Relative Root Mean Squared Error
TI	Trading Interval
WDRM	Wholesale Demand Response Mechanism
WDRU	Wholesale Demand Response Unit

APPENDIX B. DRAFT BASELINE ELIGIBILITY COMPLIANCE AND METRICS POLICY

The draft Policy have been published to accompany the Draft Report. The draft Policy are available at:

https://aemo.com.au/consultations/current-and-closed-consultations/wdrm-becm-policy

APPENDIX C. PARTICIPANT SUBMISSIONS SUMMARY

No.	Issue	AEMO comments
	Green Energy Trading	
1	Baseline accuracy thresholds and eligibility • Baseline approach as proposed (with a target accuracy of 20%) will result in significant proportion of NMIs not being eligible to WDRM. • Combined effect of baseline methodology, guideline requirements and site considerations will result in independent WRDU providers having significant difficulty in recruiting sufficient WDRU sites to the point of being almost unviable and leaving vast amounts of peak demand reduction potential unrealised and WDR largely left to the incumbent players and current practices.	• WDR is one option in a suite of demand response choices and was not designed to accommodate every load. The AEMC determined that eligibility to participate in WDR is dependent on a load's predictability, that is, loads need to be sufficiently predictable so a baseline can be established. • The Policy has to be consistent with the principles in the NER including appropriately setting bias and accuracy metrics. • AEMO believes that the 20% accuracy threshold will allow for sufficient baseline predictability, while allowing for maximum NMI participation.
2	Alternative approaches to baseline methodologies • Approach leaves significant temperature driven load ineligible. • Propose baseline methodologies specified should be based on broader measurement and verification processes to allow for participants with loads that predictably depend on variables such as time, weather or other statistically valid data, such as the International Performance Measurement and Verification Protocol (IPMVP). • Alternative approaches should be incorporated by AEMO as one of the starting baseline methodologies under the WDR.	• AEMO's approach is to develop one baseline methodology (with 4 options available varied by day type) for the start of WDR that will include business-day/non-business day options. This baseline methodology will not suit every participant perfectly, however this approach: o Minimises cost and time to market o Does not preclude the development of further baseline methodologies in the future o Aims to balance accuracy, simplicity, eligibility and integrity. • Additional baseline methodologies (including potentially those suited to temperature driven loads) may be developed in the future. This process is described in the WDR Guidelines[5] and can be initiated both by AEMO or Market Participants.

[5] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

No.	Issue	AEMO comments
	AGL	
1	Baseline accuracy and bias thresholds • Consider the baseline methodology has struck the right balance between ensuring eligible loads are sufficiently predictable to meet efficient dispatch within the spot market and opening the market to eligible NMIs to ensure appropriate capacity is available in the DRM. • Consider the proposed accuracy and bias thresholds as outlined in the draft policy appear reasonable.	• AEMO notes AGL's support for the baseline methodology and proposed accuracy and bias thresholds.
2	Changes to baseline accuracy and bias thresholds • AEMO should provide guidance on how registered DR units could be affected by changes to accuracy/bias thresholds, such as whether grandfathering eligibility arrangements for registered DR units will apply.	• Any changes to the accuracy and/or bias thresholds would only occur after significant industry consultation and sufficient lead times to allow DRSPs to inform customers and manage their contracts with WDRU providers. • If new thresholds were introduced, NMIs would need to meet the new thresholds for baseline compliance testing to continue participating in WDRM. There will be no grandfathering of eligibility arrangements.
3	• Agree with the number of calendar days proposed for eligibility/compliance assessment.	• AEMO notes AGL's support for the number of calendar days proposed for eligibility/compliance assessment.
4	• AEMO should consider whether the TI window should be defined more flexibly and constrain when the unit may be dispatched. I.e. o The TI window could be any time of the day however it must be a minimum of 10 consecutive hours. o The DR unit cannot bid available outside the TI window selected for the eligibility assessment.	• The TI window definition has been updated from that described in the issues paper (10am to 8pm) to a shorter time period of 3pm to 8pm. • For WDRM implementation, AEMO will not have a way for restricting bidding to a particular TI window. This simplification was made to minimise cost and time to market. It will be considered as a potential future improvement. • Additional baseline methodologies (including potentially those that offer alternative TI windows) may be developed in the future. This process is described in thew WDR Guidelines[6] and can be initiated both by AEMO or Market Participants.

[6] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

No.	Issue	AEMO comments
	Public Interest Advocacy Centre	
1	Baseline accuracy and bias thresholds • Supports AEMO proposing an accuracy threshold of 20%, above that considered 'good' in the RERT. • Recommend AEMO monitor how this threshold is encouraging WDR to be provided and whether it is maximising benefits for consumers from the mechanism.	• AEMO notes PIAC's support for the proposed 20% accuracy threshold. • AEMO will review the thresholds after the first summer of WDRM operation, i.e. post Q1 of 2022, to assess whether the right balance between NMI eligibility and baseline predictability has been achieved.
2	Excluded days • Concerned AEMO's proposal to determine, at its discretion, the eligibility excluded days for a NMI may create uncertainty, potentially increasing barriers for DRSPs. • To improve consistency and predictability of eligibility for DRSPs, suggest AEMO set out specific types of events and circumstances that would result in a day being excluded.	• AEMO will include a non-exhaustive list of examples eligibility excluded days in the Policy. However, each excluded day will have to be approved for use by AEMO, with clear reasoning for the request provided by the DRSP. AEMO will also provide the DRSP with reasons for why an excluded day is not approved in any rejection. • AEMO considered that the use of exclusion days should be relatively infrequent and needs to balance their use for reasonable reasons versus gaming by participants. Over-use of exclusion days would suggest that a load is not suitable for WDRM
3	Approach to WDR settings • Urge AEMO to take an approach to WDR settings that encourages the development of the mechanism and prioritises predictability, measurability and operability only to the extent necessary to realise benefits for consumers. • It is not optimal for AEMO to aim to minimise the risk of inaccuracy or bias alone. AEMO should aim to co-optimise risk management with incentivising participation to ensure WDR develops and delivers its intended benefits of lower wholesale prices, more efficient energy systems, and a faster transition to zero-emissions energy.	• The draft Policy is aligned with the NER including the requirement for the setting of baseline accuracy and bias thresholds. • AEMO must ensure it is fulfilling its broader functions of maintaining electricity system security and managing the electricity spot market and be cognizant on impact of WDR to the payers of this mechanism. Setting baselines with appropriate accuracy and bias thresholds to ensure predictability is a way of meeting these obligations.

No.	Issue	AEMO comments
Infigen Energy		
1	Baseline methodology metrics • Baseline methodology metrics - 20% RRMSE threshold is relatively high, but it increases participation markedly. • Accept the WDRM, but have the view that moving to a two-sided market would be preferred	• AEMO notes Infigen Energy's support for the proposed 20% accuracy threshold and the preference for a move to a two-sided market.
2	Baseline bias • Questioning the bias inclusion arguments – bias is easily fixed by reducing the demand forecast. We would argue that the bias limit should be zero (i.e., the bias should always be <=0; it should be the load's responsibility to take on that risk – if the bias is positive, they're getting paid for doing nothing. This could be further implemented through a make-good adjustment/offset to the bias over time – if there was a positive bias in period 1, then in period 2 all demand forecasts are reduced to try and drive the bias to zero or negative.	• The Policy is aligned with the NER including the requirement for the setting of bias thresholds. • Bias metrics for a NMI are calculated over 20-50 day timeframe (depending on the BM used) for determining NMI eligibility and compliance. Bias for a NMI baseline is not calculated for settlement purposes. • AEMO's view is that the proposed bias threshold of 4% will allow for a level of noise in a baseline but not allow a baseline to be eligible if it's systematically biased.
3	Bias calculation • Bias should be calculated on both "all" periods but also on "activated" periods – i.e., ensure that there's not a bias when they're actually being paid for DR (i.e., no gaming, selective offering, etc.). This is probably more AER than AEMO, but if there was a bias offset approach, it might need to be considered.	• The Policy is aligned with the NER requiring AEMO to assess NMI bias for eligibility and compliance. NMI bias It is not calculated for activated DR periods, with activated DR periods excluded from compliance bias calculations. • The baseline methodology chosen together with the accuracy and bias thresholds aim to ensure that gaming is reduced to a minimum. • Additionally, the NER imposes a cap on the amount payable to the DRSP for each WDRU (capped at the maximum responsive component of the relevant load). This mitigates the risk of a DRSP being paid for an over-delivery of demand response which results from changes in the underlying load at the connection point (i.e. the non-responsive component of the load).
4	• See reasonable sections on: Draft eligibility and compliance settings, Baseline eligibility assessment and Baseline compliance testing	• AEMO notes Infigen Energy's support for the Draft eligibility and compliance settings, Baseline eligibility assessment and Baseline compliance testing.

No.	Issue	AEMO comments
5	Bias calculation methodology • AEMO should develop clear procedures to assess variability and bias relative to the baseline on different timeslices, especially including non-activated and activated periods. • Any statistically significant bias or especially variations between those timeslices would suggest that a more robust baseline is required. • AEMO should develop and consult on these frameworks ahead of time, to ensure that all participants have transparency about the market.	• According to the NER, AEMO is not required to assess baseline variability, and as this this requirement has not been included in the Policy. • NMI bias is calculated over a 20-50 day time period. It is not calculated for activated DR periods, with activated DR periods are excluded from compliance bias calculations. • While bias could be calculated on a variety of time slices, this would represent additional complexity for system build with indeterminate benefits. • AEMO will review the accuracy and bias thresholds after the first summer of WDRM operation, i.e. post Q1 of 2022, to assess whether the right balance between NMI eligibility and baseline predictability has been achieved.
6	Future feedback • Want opportunity to prepare analysis to review portfolio to enable effective feedback to AEMO when the AEMO review is done after the first summer of WDR. • Market consultation should be undertaken if changes are needed.	• At any point prior or post to WDR being implemented, participants are encouraged to provide AEMO with feedback of the mechanism, whether through the various consultative forums, the formal consultation processes or through direct contact with the relevant operational team. • AEMO will review the operation of WDRM after the first summer of operation, i.e. post Q1 of 2022, and will ask for participant feedback to feed into the review. • Any changes to WDRM i.e. to the accuracy and/or bias thresholds would only occur after significant industry consultation and sufficient lead times to allow DRSPs to inform customers and manage their contracts with WDRU providers.
Enel X		
1	• Difficult to provide a clear answer on the appropriateness of the proposed eligibility and compliance metrics without knowing what the proposed baseline methodologies and adjustment mechanisms will be.	• The proposed baseline methodologies and related adjustment mechanisms will be outlined in the Baseline Methodology Register. They will be closely based on RERT, that is a CASIO 10 of 10 baseline methodology with an on the day adjustment and differentiated through day types (i.e. business days, non-business days, all days etc.). • The eligibility and compliance metric thresholds will be applied uniformly to all baseline methodologies irrespective of their actual settings.

No.	Issue	AEMO comments
2	• Further analysis using the proposed baseline methodologies and the eligibility and testing parameters in the draft policy would be beneficial, to get a more accurate picture of the proportion of C&I NMIs that would be eligible under the proposed metrics.	• The OGW analysis looked at the CAISO 10 of 10 baseline methodology (with various adjustment methods/caps). A variation of this methodology will be used for the implementation of WDR. • There was little difference in eligibility within the various baseline methodologies examined. Eligibility was driven more by the accuracy threshold set in the analysis. • AEMO does not believe additional analysis would provide further information on C&I NMI eligibility beyond what has already been learned.
3	• Greater flexibility on the RRMSE threshold, eligibility windows and trading intervals would enable more loads to participate and would maximise the effectiveness of the WDRM.	• AEMO will review the thresholds after the first summer of WDRM operation, i.e. post Q1 of 2022, to assess whether the right balance between NMI eligibility and baseline predictability has been achieved. • The TI window definition has been updated from that described in the Issues Paper (10am to 8pm) to a shorter time period of 3pm to 8pm. • For WDRM implementation, AEMO will not have a way for restricting bidding to a particular TI window. This simplification was made to minimise cost and time to market. It will be considered as a potential future improvement. • Additional baseline methodologies (including potentially those that offer alternative TI windows) may be developed in the future. This process is described in thew WDR Guidelines[7] and can be initiated both by AEMO or Market Participants.
4	• Eligibility and compliance trading intervals must be expressed in local time.	• This will be clarified in the Baseline Methodology Register.

[7] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

No.	Issue	AEMO comments
5	• The NMI suspension process should be as quick and easy as possible.	• DRSPs can make a NMI temporarily 'unavailable' for either baseline non-compliance, or other reasons through AEMO's Portfolio Management System. Ongoing non-compliance should result in a declassification request. • AEMO has the ability to suspend a NMI if it is found to be non-compliant and the DRSP does not act as required.
6	Proposed statistical methods for baseline eligibility assessment and baseline compliance testing • Formulas for RRMSE in clause 2.5(d) and ARE in clause 2.6(d) of the draft policy should clarify that the baseline input is an adjusted baseline, in line with clauses 3.2.3 and 4.5.3.	• This has been clarified in the Policy.
7	Proposed accuracy threshold • Oakley Greenwood's analysis shows that under a 20 per cent RRMSE ~80 per cent of loads in the 160-750MWh category will be excluded from participation, and 65 per cent of loads in the 750MWh-100GWh category will be excluded. Excluding such a large proportion of loads at the outset is likely to reduce the effectiveness of the mechanism and runs counter to its objective. • Increasing the RRMSE threshold will mean more loads are eligible to participate. Importantly, AEMO's concern that a higher accuracy threshold "would likely lead to inefficient dispatch and increased uncertainty as to the amount of demand response available" can be addressed. • Uncapped day-of adjustments will allow DRSPs to adjust the baseline methodology to more accurately reflect the amount of demand response available, particularly on very hot days when C&I consumption tends to be higher, and when WDR dispatches are most likely to occur. • DRSPs will have a range of regulatory obligations, and financial and reputational incentives, to make sure that their offers to the market reflect the capability of the loads in their portfolio.	• The setting of the accuracy threshold represents a tradeoff between baseline predictability and eligibility. AEMO believes the 20% accuracy threshold strikes the right balance. • WDR is one option in a suite of demand response choices and was not designed to accommodate every load. The AEMC determined that eligibility to participate in WDR is dependent on a load's size and its predictability: o Broadly, only "large customer" loads are eligible to participate in WDR, however aggregated "small customer" loads may be eligible in certain circumstances. The thresholds for what constitutes a "large customer" is different from state to state. o Loads also need to be sufficiently predictable so a baseline can be established. WDR settlement and dispatch performance are both measured against a load's baseline. • The baseline methodologies available for the start of WDRM will have an on-the day adjustment component. The adjustment will be applied similarly to that currently used under RERT. Details will be provided in the Baseline Methodology Register (to be published).

No.	Issue	AEMO comments
8	Bias threshold • As above, it is difficult to determine the suitability of the proposed bias threshold without knowing what the baseline methodology/ies will be, and what adjustment mechanism will apply. We support further analysis of the appropriateness of this threshold using the actual proposed WDR baseline methodology and the proposals in this draft policy. • Further, it is still not clear that a bias assessment is necessary, as day-of adjustments (if permitted in the baseline methodologies) tend to remove biases. While we are aware of a few markets overseas that have a baseline accuracy threshold, we are not aware of any others that have a similar test for baseline bias, except in unusual cases where customers submit their own baseline values rather than using an objective baseline methodology. • But, if it is to be included, a higher bias threshold of 5 per cent is preferable as it would reduce the likelihood of loads being rendered ineligible by some random variation. • To reflect AEMO's position in clause 2.6(c) of the draft policy, we suggest that the bias threshold in Table 1 clearly show that the threshold will be triggered by either a positive or negative value.	• The Policy is aligned with the NER which requires AEMO to set bias thresholds. The bias threshold is not baseline specific, it represents whether a baseline systematically over or underestimates the load at a connection point. • The baseline methodologies available for the start of WDR and related adjustment mechanisms will be outlined in the Baseline Methodology Register. They will be closely based on RERT, that is a CASIO 10 of 10 baseline methodology with an on the day adjustment and differentiated through day types (i.e. weekdays, weekend etc.). • The eligibility and compliance metric thresholds will be applied uniformly to all baseline methodologies irrespective of their actual settings. • The OGW analysis looked at the CAISO 10 of 10 baseline methodology (with various adjustment methods/caps). A variation of this methodology will be used for the implementation of WDRM. There was little difference in eligibility within the various baseline methodologies examined. Eligibility was more driven by the accuracy threshold set in the analysis. • The OGW analysis showed low bias for the NMIs examined (with median bias scores under 1% for baseline methodologies tested) and AEMO does not believe the threshold set for the bias metric will materially restrict eligibility. AEMO does not believe additional analysis would provide further information on C&I NMI eligibility beyond what has already been learned. • AEMO notes the request to clarify the use of positive/negative values for the bias threshold. This is updated in the Policy.

No.	Issue	AEMO comments
9	Proposed minimum number of eligibility/compliance days • Clause 3.2.1(c) of the policy suggests AEMO discretion on what an "eligibility excluded day" is. Enel X's preference is for this to be more clearly defined in the policy. Doing so would promote transparency and enable DRSPs to run their own assessments of the likelihood of baseline eligibility before applying to classify a load, and conduct ongoing baseline compliance. • Activities that might define an eligibility excluded day include: scheduled maintenance, scheduled and unscheduled outages (including partial outages), site commissioning, equipment failure, dispatch events (including those for other markets, such as FCAS or network support programs), and meter data quality issues. We also see value in the DRSP and AEMO having the ability to propose other activities that might define an eligibility excluded day for a particular NMI, if the DRSP provides evidence to support that. • Number of eligibility days is presented as a minimum. Will this give AEMO/DRSPs the ability to conduct the assessment over a larger number of eligibility days? • Seek clarification on whether AEMO will require 5-minute data to conduct an eligibility assessment, noting that not all C&I loads will have 5-minute data available prior to participating in the WDRM.	• AEMO will include a non-exhaustive list of examples exclusion days in the Policy. However, each exclusion day will have to be approved for use by AEMO, with clear reasoning for the request provided by the DRSP. • AEMO considered that the use of exclusion days should be relatively infrequent and needs to balance their use for reasonable reasons versus gaming by participants. Over-use of exclusion days would suggest that a load is not suitable for WDRM. • The description of eligibility days in the Policy is updated to remove word "minimum" to clear up any confusion. The stipulated eligibility/compliance days will be the required days for eligibility assessment/compliance test. • AEMO will convert all required 30-minute data to 5-minute data (by dividing by 6) for purpose of eligibility assessment and/or compliance testing. Participants should note that this may make the accuracy/bias thresholds easier to meet for some NMIs and participants should be mindful that once 5 minute data is available, a WDRU may become baseline non-compliant.

No.	Issue	AEMO comments
10	Proposed eligibility/compliance TIs window • While generally supportive of the proposed approach, we are concerned that some NMIs may be excluded from participation if their compliance assessment is thrown out by performance in several TIs, particularly given C&I loads can vary greatly in their operations across the day. • One solution could be to enable a NMI to define a narrow set of TIs within which their eligibility is assessed, and then restrict their market participation to only those intervals. For example, this would accommodate a site that had predictable consumption during core business hours but somewhat erratic start-up or shut-down times. While we recognise that this approach may bring some administrative challenges, greater flexibility here would enable more loads to participate. • We also seek clarification on what time the eligibility TIs are expressed in: market time or local time? We strongly suggest that the eligibility and compliance assessments use local time, as this best reflects the daily operations of C&I businesses in their specific location, and will better accommodate daylight savings changes.	• The TI window definition has been updated from that described in the issues paper (10am to 8pm) to a shorter time period of 3pm to 8pm. • For WDRM implementation, AEMO will not have a way for restricting bidding to a particular TI window. This simplification was made to minimise cost and time to market. It will be considered as a potential future improvement. • Additional baseline methodologies (including potentially those that offer alternative TI windows) may be developed in the future. This process is described in the WDR Guidelines[8] and can be initiated both by AEMO or Market Participants. • The Baseline Methodology Register will be updated to clarify that the eligibility and compliance widows use market time. AEMO determined that using local time would represent additional complexity without sufficient benefit to justify it.
11	Baseline eligibility assessment and baseline compliance testing • Agree that baseline adjustments should be used when conducting baseline eligibility assessments and baseline compliance testing. • Support the ability for DRSPs to use AEMO's baseline compliance testing tool to conduct their own testing. • Will DRSPs be required to do anything to support the compliance testing process (e.g. provide data), or whether AEMO will have all necessary information on hand?	• AEMO notes Enel X's support for including the adjustment mechanism for baseline eligibility assessment and compliance testing. • AEMO notes Enel X's support for using AEMO's baseline compliance testing tool. • DRSP will be asked to provide exclusion days (if any) they want considered for the baseline eligibility and compliance testing through AEMO's Portfolio Management System.

[8] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en

No.	Issue	AEMO comments
12	Timing of baseline compliance testing • Support the proposed frequency of baseline compliance testing. • Worthwhile considering whether the test should be conducted at the end of summer and winter (looking back over those periods). The data from those periods (when adjustments and exclusion days are accounted for) will better reflect what loads can actually do when dispatches are most likely to occur.	• AEMO will maintain the current proposed testing schedule of twice a year (start of summer and winter). These are indicative times only. AEMO may change this in the future if some benefit is indicated of post summer compliance testing. • AEMO will have the ability to run baseline compliance testing for one or more NMIs at any time, and DRSPs can also run a baseline compliance test on a NMI at any time.
13	Clause 4.7.2.2 • We seek clarification on the policy intent behind this clause, and what risk it is trying to protect against. Is its purpose to give AEMO the ability to suspend a NMI if it is found to be non-compliant, and the DRSP doesn't suspend it itself? • Or, to allow AEMO to do this on the DRSP's behalf so that it can suspend a baseline non-compliant NMI as soon as possible? If it is the latter, would it make more sense for AEMO to impose this ability on all aggregations, not just some (as the wording in 4.7.2.2.(a) suggests), and indeed all DUIDs (including those with only one NMI)? It's not clear why AEMO would only impose its ability to suspend a baseline non-compliant WDRU on some aggregations and not others.	• Please note clause 4.7.2.2 and clause 4.7.2.3 have been switched and renamed in the Policy for clarification purposes. • Clause 4.7.2.2 (now clause 4.7.2.3) of the Policy has been updated with some clarifications. • The intent of Clause 4.7.2.2 (now clause 4.7.2.3) is to give AEMO the ability to suspend a NMI if it is found to be non-compliant and the DRSP does not act as required. It is not to allow AEMO to suspend a NMI on a participant's behalf. • As outlined in Clause 4.7.2.2, participants can make a NMI 'unavailable' through AEMO's Portfolio Management System or request that a NMI be declassified if they become aware its non-compliant or AEMO tells them that its non-compliant. • AEMO considers it unlikely that it will need to use this clause often, given that a DRSP will have the ability to self-resolve an issue around NMI non-compliance (though making a NMI 'unavailable'), and any suspension process would only occur following a process of discussion with the DRSP.

No.	Issue	AEMO comments
14	Clause 4.7.2.3 • Support the ability for a DRSP to suspend a NMI from a DUID. As discussed with AEMO, clause (a) and (b)(iv) appear to be in conflict, with the latter implying that the suspension could only occur for reasons of baseline non-compliance. Having discussed this with AEMO, we support the proposal to amend clause (iv) to reflect that a DRSP will be able to suspend a NMI for any reason. Given this proposed change, it may be better for this whole clause to be included in the WDR guideline instead, given it is not related to baseline eligibility or compliance. • Seek clarification on the timing of AEMO's approval. We are concerned that the proposed approval process in this clause will take some time to occur, and that there is no maximum timeframe specified. Given the variable and sometimes unpredictable nature of C&I loads, the quicker and smoother the suspension process is the better. Allowing DRSPs to quickly suspend a NMI from a DUID will give AEMO a clearer picture of what is actually available to be dispatched. It is AEMO's interests to minimise the amount of administration involved and to make this process as automated as possible. • Seek clarification on the consequences if AEMO's approval doesn't come in time for a dispatch. Would the DRSP be required to bid an available capacity of zero for the whole DUID?	• Please note clause 4.7.2.2 and clause 4.7.2.3 have been switched and renamed in the Policy for clarification purposes. • Clause 4.7.2.3 (now clause 4.7.2.2) of the Policy has been updated with some clarifications. AEMO believes that the Policy remains the best place for this clause. • A DRSP will be able to make the WDRU/NMI unavailable for any reason, but a reason will need to be provided to AEMO by the DRSP. AEMO considers this action should be relatively infrequent, otherwise the continuing eligibility of the NMI for WDRM would need to be reconsidered. • DRSPs can make a NMI unavailable for either baseline non-compliance, or other reasons through AEMO's Portfolio Management System. Ongoing non-compliance should result in a declassification request. • AEMO will not need to approve a DRSP setting a NMI as unavailable. DRSPs can make a NMI unavailable through AEMO's Portfolio Management System, by selecting the NMI, set it to unavailable with a reason. From that point on the NMI will not be included in the DUID for settlement or dispatch conformance assessment. A DRSP must also immediately edit their bids/available capacity accordingly.

No.	Issue	AEMO comments
	ERM Power	
1	Baseline accuracy threshold • ERM Power strongly disagrees with AEMO's proposed accuracy metric of 20%. • Final Determination stated that AEMO "should require baselines to exceed the levels of accuracy considered 'good' in the AEMO-ARENA demand response RERT trials". The level of good was set at 10 per cent Relative Root Mean Square Error (RRMSE). The AEMC goes on to say that "The standard for baselines used for wholesale demand response, which is required to be reliable and predictable, should be higher than that experienced with emergency demand response such as the RERT."	• AEMO notes ERM Power's disagreement with the proposed 20% accuracy threshold. • While the AEMC's final determination gives some direction as to the level of baseline accuracy for WDRM, the NER leaves it to AEMO to define the accuracy threshold. • AEMO's approach to defining the accuracy thresholds was to consider a raft of factors including the effect of the accuracy thresholds on WDRM participation, the uncertainties that surround a new mechanism like WDRM and the effects 5 minute settlement will bring to NMI eligibility.
2	Baseline methodology metrics and their effect on AEMO's demand forecast • Final WDRM Rule 3.10.3 requires that: (f) In determining the baseline methodology metrics and the frequency of baseline compliance testing, AEMO must have regard to: … (3) the level of accuracy achieved by the demand forecasts used by AEMO for pre-dispatch and the forecasts referred to in rule 3.7B(c)(4). Clause 3.7B(c)(4) refers to "the forecasts of the energy available for input into the electrical power conversion process for each semi-scheduled generating unit". • Understand that AEMO currently updates its load forecasts if error rates exceed a threshold far lower than 10 per cent of average demand – generally around 2-5 per cent of average demand. As such, we consider that the proposed 20 per cent accuracy threshold is far too high, and that 10 per cent would provide sufficient flexibility to participate without risking distorting AEMO's demand forecasts or the spot market.	• When setting the proposed accuracy threshold, as directed by the Rules AEMO did consider its relationship to AEMO's demand forecast for pre-dispatch and semi-scheduled generation. The error rates relevant for pre-dispatch demand forecasts are applied at an instantaneous, regional level and on fixed MW basis (historically derived from percentage of demand). While for the conformance calculation for semi-scheduled generating units, the error trigger threshold is fixed at 6MW. Depending on the unit's size this can be significantly lower or higher than 20%. For WDRM, the accuracy metric is applied at a NMI level and is calculated using the RRMSE statistic (which is not the same as a simple % error statistic) measured over a select number of TIs over the past 20-50 days (depending on baseline methodology). • AEMO does not believe that the error rates in these demand forecasts are directly comparable to the eligibility/compliance criteria i.e. the accuracy threshold for WDRM. For WDRM accuracy measured at the NMI level, the error will always be higher than when it is aggregated to the regional level. Additionally, the use of an error percentage or a MW error threshold is not directly comparable to an RRMSE statistic.

No.	Issue	AEMO comments
3	WDRM accuracy threshold compared to RERT • AEMO suggests applying a threshold of 20 per cent RRMSE. That is, loads could vary by plus or minus 20 per cent from the expected baseline and still be compliant. AEMO justifies this by arguing that the RERT scheme has an accuracy threshold of 20 per cent. • This position ignores the AEMC's argument in the final determination that the accuracy metric for wholesale demand response should be better than the RERT and that the Rules require that the accuracy level be consistent with that used by AEMO for demand and intermittent generation forecasts. • ERM Power can understand a less stringent accuracy threshold for demand response in the RERT because it is rarely used and pricing and settlement for RERT dispatch occurs outside the market dispatch and pricing framework. However, under the WDRM, demand response may be a price setter, and as such it is entirely appropriate for it to face a tougher set of accuracy metrics.	• While the AEMC's final determination gives some direction as to the level of baseline accuracy for WDRM, the NER leaves it to AEMO to define the accuracy threshold. • While guided by the AEMC final determination and the reference to RERT, as outlined in the Issues Paper, RERT baseline accuracy is measured on an aggregated basis, while for WDRM it is on a NMI basis. An aggregate error measurement will result in higher accuracy as errors at the NMI level are smoothed out, while at a NMI level load can be more volatile, especially as the market moves to 5-minute settlement. For this reason, AEMO believes that a 20% accuracy threshold for WDRM is a stricter measure than the same threshold for RERT.

No.	Issue	AEMO comments
4	WDRM and the spot market • AEMO argues that a 20 per cent accuracy threshold is also justified to "allow levels of participation which ensure the effectiveness of the WDRM". This misses the point that the WDRM is not a mechanism on its own. Rather, it forms part of the wider spot market. Allowing less accurate demand response to participate in the spot market (not the WDRM alone) distorts the spot market and has the potential to create far bigger risks to the entire market. Clause 3.10.3 (f)(2) of the National Electricity Rules sets out that in determining baseline methodology metrics, AEMO must have regard to "the need to maximise the effectiveness of wholesale demand response at the least cost to end use consumers of electricity". To focus on "the effectiveness of the WDRM" as AEMO suggests is a mistake. • As AEMO notes a more generous accuracy measure "would likely lead to inefficient dispatch and increased uncertainty as to the amount of demand response available." As noted earlier in this submission, the Rules also state that AEMO must have regard to "the level of accuracy achieved by the demand forecasts used by AEMO for pre-dispatch…". ERM Power notes that this aligns with the AEMC's view in the Final Determination which "sets out a baseline compliance process that means only loads that can have accurate and unbiased baselines will be able to participate. This should minimise the impact of baseline inaccuracy on the rest of the market and provide greater confidence that the demand response provided under the mechanism is real and additional."	• AEMO believes that the purpose of the baseline accuracy metric is to limit the potential under or over payment of WDR rather than under or over dispatch of WDR. AEMO believes the accuracy threshold would have limited impact on the wider spot market. AEMO is developing a dispatch conformance assessment for WDR that they believe establishes a comparable performance requirement to other scheduled or semi scheduled units. • In AEMO's view, it is prudent to commence WDRM with an accuracy threshold which initially promotes higher levels of eligibility (while still achieving sufficient baseline predictability) to achieve greater overall benefits from WDRM. Accordingly, the aim is that a level of NMI participation can be achieved, where meaningful lessons may be learned about WDRM operation over the initial phases of the WDRM. AEMO can then adjust the accuracy threshold, if necessary. In contrast, if the accuracy thresholds are set to a level where NMI participation is limited, WDRM benefits may be curtailed. • There are restrictions in the rules that mitigate any inaccuracies in NMI baselines, including the dispatch conformance process as well as the cap on the amount payable to the DRSP for each WDRU (capped at the maximum responsive component of the relevant load).
5	• As discussed in the AEMC's final determination, if a baseline is wrong in a single instance, then demand response will either be over or undervalued. What is more important is that over time baseline are correct on average. If correct on average, the over- and under-valuation of demand response will net out over time. ERM Power considers that the greater the level of error allowed (higher accuracy threshold), the less likely it is that baselines will be correct on average over time. Further, as WDR is only expected to be dispatched at times of very high prices, there is a significant risk that DR will be overvalued if the baseline accuracy level is high.	• The intent of the baseline bias threshold alongside the accuracy threshold is to ensure that any over- and under-valuation of demand response will net out over time. AEMO believes that the proposed bias threshold in the Policy meets this aim.

No.	Issue	AEMO comments
6	• ERM Power understands that it is impossible to create entirely accurate baselines – that is not what we are arguing for – but what is crucial is that baselines do not undermine the spot market. AEMO's proposed accuracy metric is far too generous and imposes too many risks on electricity consumers to be justified. It also fails in our view to meet the requirements as set out in the Rules as well as that detailed by the AEMC in the WDRM rule change Final Determination. A maximum 10 per cent accuracy threshold, in line with what was originally suggested by the AEMC is a far more appropriate level to apply.	• The RRMSE for a NMI is measured over a 20-50 day period (depending on the baseline methodology applicable) for a selected group of TIs. It is used to determine whether a NMI can be allowed to participate in the WDRM. • Once providing DR a NMI will only be settled for DR calculated against their baseline for that particular day, with a cap on the amount payable to the DRSP for each WDRU (capped at the maximum responsive component of the relevant load). • AEMO does not agree with the arguments that ERM Power have made and does not believe the accuracy thresholds and the way it operates will undermine the spot market in any way.
7	Future changes to baseline metrics • Concerned that AEMO may be reluctant to lower the accuracy threshold in the future because a move to reduce the threshold would likely make a number of (WDRU) non-compliant. • Concerned any move to reduce the threshold in future years would be met with strong resistance.	• AEMO will review the baseline metric thresholds after the first summer of WDRM operation, i.e. post Q1 of 2022, to assess whether the right balance between NMI eligibility and baseline predictability has been achieved. • Any changes to WDRM i.e. to the accuracy and/or bias thresholds would only occur after significant industry consultation and sufficient lead times to allow DRSPs to inform customers and manage their contracts with WDRU providers.

No.	Issue	AEMO comments
8	Additional baseline methodologies • Recommend that AEMO focus its attention on developing additional baseline methodologies to allow for additional demand response to participate in the market. We consider that well-designed baselines with suitable accuracy and bias thresholds will enable new wholesale demand response units to participate in the market without increasing the risks to the broader market. If designed appropriately these baselines should allow other types of load, such as temperature sensitive loads like chillers – to become WDRUs without also allowing existing WDRUs to cherry-pick baselines to gain a more favorable outcome. • Temperature-sensitive loads in particular may be best suited to providing demand response at times when temperature, electricity demand and prices are high – an optimum time for demand response to activate. Future baselines could also factor in different operating hours, such as extended hours in shopping centers on certain nights. • We believe that this is the best way to grow the market and enable greater participation from demand response in the spot market. We would welcome the opportunity to work with AEMO to develop future baseline methodologies to support loads that would not meet a 10 per cent accuracy threshold for this initial baseline methodology.	• AEMO's approach is to develop one baseline methodology for the start of WDR that will include weekday/weekend options. The baseline methodology will not suit every participant perfectly, however this approach: o Minimises cost and time to market o Does not preclude the development of further baseline methodologies in the future o Aims to balance accuracy, simplicity, eligibility, and integrity. • Additional baseline methodologies (including potentially those suited to temperature driven loads) may be developed in the future. The process for proposing new baseline methodologies is described in thew WDR Guidelines[9] and can be initiated both by AEMO or Market Participants. • For WDRM implementation, AEMO will not have a way for restricting bidding to particular TI windows. This simplification was made to minimise cost and time to market. It will be considered as a potential future improvement. • DRSPs will be expected to manage their bidding behavior with respect to the day type settings relevant to the baseline methodology applied to any particular NMI. That is, only bid in on days for which the baseline of that NMI applies, i.e. only business days for a NMI with a Business Day Baseline.

[9] Draft version of the WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/wholesale-demand-response-guidelines-draft-jan-2021.pdf?la=en