AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

NATIONAL ELECTRICITY MARKET

BASELINE ELIGIBILITY COMPLIANCE AND METRICS POLICY

FINAL REPORT AND DETERMINATION

Published: 20 May 2021

EXECUTIVE SUMMARY

The publication of this Final Report and Determination (Final Report) finalises the consultation by AEMO (Consultation) 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 wholesale demand response (WDR) in the National Electricity Market (NEM) through implementing the WDR mechanism (WDRM) 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 facilitated 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 minor changes and clarifications to the draft Policy, which included setting the bias threshold at ±4%.

On 8 April 2021, AEMO published the Draft Report and Determination (Draft Report) and draft Policy. AEMO received four submissions in respect of the Draft Report and draft Policy. After considering the submissions, AEMO has made no substantive changes to the final Policy. AEMO has made the following updates to Policy:

- All references to "excluded day" have been updated to "exclusion day", to match the language used in the Portfolio Management System (PMS), as well as associated documentation.
- Minor drafting updates in the 'Introduction' section.

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

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1. STAKEHOLDER CONSULTATION PROCESS

AEMO is consulting on the Policy in accordance with NER 8.9. The consultation timeline is outlined below.

Deliverable	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 Final Report marks the finalisation of the 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 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

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 adjustment[1] which is capped at ±20%. The adjustment window will comprise the trading intervals in the three hours which end one hour before the first WDR trading interval.

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

The Methodologies will be differentiated by the following day types:

i. Business days (Business Days Methodology)

ii. Non-business days (Non-Business Days Methodology)

iii. All days (All Days Methodology)

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

The Methodologies will be described in detail in the Baseline Methodology Register (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 six written submissions, from Green Energy Trading, the Public Interest Advocacy Centre (PIAC), Infigen Energy, Enel X, ERM Power and AGL. In response, AEMO changed to the draft Policy to:

- Clarify 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).
- Clarify that the bias threshold applies both as a negative and positive (Table 1, clause 2.7).
- Propose a bias threshold of ±4% (Table 1, clause 2.7).
- Remove the word "minimum" with reference to "eligibility days" and "compliance days".
- Provide a non-exhaustive list of eligibility excluded days (clause 3.2.1) and compliance excluded days (clause 4.5.1).
- 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).
- Clarify the application of clause 4.7.2.2, which describes the process for DRSPs to use the PMS to make a non-baseline compliant WDRU temporarily unavailable.
- Clarify 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.
- Insert a new clause 2.1(h) to state explicitly that a WDRU can only be bid in and be dispatched and settled for day types which are associated with the baseline methodology assigned to the WDRU, such that a WDRU under a Business Days Methodology can only be bid in on a business day.

2.5. Second stage consultation

AEMO issued the Notice of Second Stage Consultation on 18 March 2021. The Draft Report[3] outlined AEMO's responses to submissions made in the First Stage Consultation. The draft Policy was updated to reflect the changes which resulted from the submissions.

[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] 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

AEMO received four written submissions to the Second Stage Consultation, from VIOTAS, PIAC, Enel X and Shell Energy.

AEMO discussed the development of the Policy extensively before and during the Second Stage Consultation at WDR Consultative Group meetings. AEMO discussed the draft Policy in meetings with several individual stakeholders by 8 April 2021.

After considering the submissions, AEMO has made no substantive changes to the final Policy. AEMO has made the following changes to the Policy:

- All references to "excluded day" have been updated to "exclusion day", to match the language used in the PMS, as well as associated documentation.
- Minor drafting updates in the 'Introduction' section.

3. SUMMARY OF MATERIAL ISSUES

The key material issues are as follows:

No.	Issue	Raised by
1.	Accuracy threshold	Multiple respondents
2.	20% adjustment cap	Multiple respondents
3.	Bias threshold	Multiple respondents
4.	Reviewing WDRM and grandfathering of baseline eligibility	Multiple respondents
5.	New baseline methodologies	Multiple respondents

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:

- VIOTAS noted that the proposed 20% accuracy threshold and ±4% bias threshold will help to ensure that a broader range of loads will participate in the WDRM than in RERT, but considered that AEMO could have gone further.
- PIAC stated that it supported the 20% accuracy threshold in the First Stage Consultation, but now supported the concerns of major WDR providers, that the 20% threshold, combined with the cap on 'day-of' adjustments and limited baseline methodology, will exclude a large proportion of loads, particularly those which are variable and temperature sensitive, therefore representing high value WDR.
- EnelX stated that its concern, as expressed in the First Stage Consultation, that the proposed 20 per cent RRMSE threshold will make many loads ineligible.
- Further, in EnelX's view, increasing the RRMSE threshold will increase the number of NMIs which will participate, while day-of adjustments, regulatory obligations, incentives and telemetry will ensure the integrity of dispatch.

- Shell Energy strongly disagreed with the 20% accuracy threshold, maintaining its view as expressed in the First Stage Consultation that a maximum 10% accuracy threshold is more appropriate.

4.1.2. AEMO's assessment

AEMO's aim in developing the initial baseline methodology and the accuracy and bias thresholds has been to allow for:

- Wide eligibility in WDRM while ensuring baselines are accurate and unbiased.
- A robust process around eligibility assessment and compliance testing.
- Minimal opportunity for gaming of baselines.

The aim of the accuracy threshold is not to restrict participation in the WDRM, but rather to ensure that the baselines which are used are sufficiently predictable to ensure all the integrity of the WDRM, and demand response paid for is actually delivered. AEMO considers that increasing the accuracy threshold is not the best way of accommodating those loads which are temperature sensitive. Rather, additional baseline methodologies (including potentially those suited to temperature driven loads) may be developed in the future, and will be considered by AEMO from April 2022.

Conversely, AEMO does not consider that the 20% accuracy threshold will lead to poor outcomes in demand forecasts and dispatch. The goal of the accuracy threshold is to ensure that only baselines which are sufficiently accurate are eligible for WDRM. However, there are additional safeguards applied at dispatch to mitigate any inaccuracies in NMI baselines. These safeguards include:

- The dispatch conformance process.
- 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.

The NER requires that AEMO must determine the metrics setting out the parameters for assessing the baseline, including the assessment of accuracy. AEMO considers that the 20% accuracy threshold for the start of WDRM operations strikes the right balance between eligibility and baseline predictability. The threshold, including this balance, will be reviewed in 2022, when relevant aspects of the WDRM are more certain, given that the WDRM will have been operational and maintained for the period since its commencement.

4.1.3. AEMO's conclusion

AEMO notes that:

- Three submissions stated or implied that the accuracy 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 will remain at 20% in the final Policy.

4.2. 20% adjustment cap

4.2.1. Issue summary and submissions

In the draft Report, AEMO outlined the Methodologies which will be available at the commencement of the WDRM. The Methodologies all sit under the CAISO '10 of 10' framework. They have an on-the-day multiplicative adjustment which is capped at ±20% (Adjustment Cap).

In response:

- PIAC supported the removal of the Adjustment Cap.
- EnelX argued for the removal of the Adjustment Cap, as in their view it will decrease baseline accuracy and increase baseline bias, therefore limiting the number of WDR-suited loads that will be eligible to participate at WDRM commencement. EnelX argued that if AEMO is not open to increasing or removing the Adjustment Cap, then it must balance the Adjustment Cap by increasing the RRMSE and ARE thresholds.

4.2.2. AEMO's assessment

AEMO notes the support of PIAC and EnelX for removing the Adjustment Cap. However, the Adjustment Cap is part of the Register, not the Policy, so is not part of the Consultation in respect of the Policy.

The purpose of on-the-day adjustment is to allow for some variability of the baseline on the day of the WDR event, to account for conditions on that day. AEMO considers that an uncapped adjustment would significantly increase the opportunity for gaming of loads which can exploit the adjustment window.

AEMO understands that the Adjustment Cap may curtail the baseline uplift of loads which are very temperature sensitive on hot days and may reduce the value which they can receive for WDR. Accordingly, the initial Methodologies may not be suitable in respect of such loads.

However, in terms of eligibility assessment, which is the subject of the Consultation, AEMO does not consider that the Adjustment Cap would significantly limit the ability of NMIs with reasonably predictable loads to participate in the WDRM. Both NMI accuracy and bias are calculated over a 20-50 day time period (depending on the Methodology) for eligibility assessment and compliance testing. Accordingly, in AEMO's view, the Adjustment Cap is unlikely to impact the baseline of a load which is reasonably predictable over a sufficient number of days in the calculation period to significantly impact the accuracy or bias value calculated for the load.

AEMO does not consider that removing the Adjustment Cap from on-the-day adjustments would be the best way to deal with temperature sensitive loads while maintaining integrity in the WDRM for all participants. Accordingly, AEMO does not anticipate creating a methodology which is based on the 'CAISO 10 of 10' framework that would remove the Adjustment Cap.

To create sufficiently accurate baselines for temperature sensitive loads, it is likely that new methodologies would need to be formulated, in addition to those available at the commencement of WDRM.

4.2.3. AEMO's conclusion

The ±20% Adjustment Cap is contained in the Register, not the Policy. The Adjustment Cap will not be updated. Additional baseline methodologies may be implemented in the future which are more suitable to temperature sensitive loads.

4.3. Bias threshold

4.3.1. Issue summary and submissions

In the draft Policy, AEMO proposed that the bias threshold be set at ±4%, with the view that the bias threshold should be as low as possible to minimise market distortion, without unduly excluding potential participants.

In response:

- EnelX argued that the 20% cap on the on-the-day adjustment will increase baseline bias, therefore limiting the number of WDR-suited loads which will be eligible to participate at WDRM commencement. EnelX argued that if AEMO is not open to increasing or removing the Adjustment Cap, then it must balance the Adjustment Cap by increasing the RRMSE and ARE thresholds.
- VIOTAS noted that the proposed 20% accuracy threshold and ±4% bias threshold will help to ensure that a broader range of loads will participate in the WDRM than in RERT, but considered that AEMO could have gone further.
- PIAC acknowledged that AEMO is obligated under the NER to include a bias metric, but noted that the ±4% threshold, combined with other design decisions, will likely result in a large portion of loads being ineligible. Further, PIAC supported the view of a number of stakeholders that the bias metric is not clearly necessary, recommending that AEMO should continue to seek alternative means of dealing with bias which do not unnecessarily restrict participation.

4.3.2. AEMO's assessment

The assessment of baselines for bias is a NER requirement, which will continue to be part of baseline eligibility assessment and compliance testing, unless the requirement is removed or changed.

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 bias threshold of ±4% would not materially restrict NMI eligibility. Additionally, the bias threshold will be reviewed in 2022 to ensure that it does not unnecessarily restrict WDRM participation. AEMO view as unlikely the outcome that the Adjustment Cap will affect NMI bias, thereby resulting in more NMIs being ineligible to participate in the WDRM. Depending on the applicable baseline methodology, bias is calculated over a 20-50 day time period for eligibility assessment and compliance testing. Accordingly, it is improbable that the 20% Adjustment Cap will impact a load's baseline on a sufficient number of days/trading intervals over that time period to significantly impact the bias value which is calculated for the load.

4.3.3. AEMO's conclusion

In AEMO's view, the ±4% bias threshold will allow for a level of "noise" in the baseline bias calculation, but will not allow a baseline to be eligible for the WDRM if it is systematically and materially biased. Therefore, the bias threshold will remain at ±4% in the final Policy.

4.4. Reviewing WDRM and grandfathering of baseline eligibility

4.4.1. 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 of loads which have accurate and unbiased baselines.
- WDR which is provided under the WDRM is real and additional.

AEMO stated in the draft Report that eligibility will not be grandfathered in the circumstances of updates to the accuracy/bias thresholds.

In response:

- VIOTAS supported AEMO's proposal to annually review the eligibility and compliance methodology, including the accuracy and bias thresholds, starting in 2022, after the first summer of WDRM operation.
- VIOTAS noted that while it is important to fairly treat any WDRUs which are already registered (classified) in respect of any changes to baseline metrics, AEMO must consider feedback and lessons learnt in the process of implementing the WDRM, to ensure that the accuracy/bias thresholds are striking the right balance between maximising NMI eligibility and ensuring baseline predictability. In this regard, an annual review based on a transparent consultation process is appropriate, once DRSPs have operational portfolios of WDRUs, thereby generating real experience and evidence of the true implications of these parameters.
- PIAC did not support the grandfathering of eligibility arrangements by default. PIAC recommended that AEMO should consider whether grandfathering is appropriate once the impacts of changes to metrics on consumers and DRSPs can be determined.
- Shell Energy supported AEMO's view that it will not grandfather eligibility based on these initial settings. Shell Energy considered this to be an important decision. The consequence is that, in the event that the accuracy or bias thresholds need improving – particularly as new baselines are developed – AEMO would not be locking poorly-performing loads into WDRM.
- EnelX suggested that AEMO should not decide on whether eligibility arrangements will be grandfathered until the WDRM is reviewed in 2022, at which time the impact of such arrangements would be better known.
- EnelX noted that if eligibility requirements are tightened and grandfathering arrangements do not apply, then WDR loads which enrolled after WDRM commencement would need to exit, potentially just months after they entered. This presents an unnecessary risk for prospective DRSPs at this stage.

4.4.2. AEMO's assessment

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. AEMO will seek participant feedback during the review.

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.

AEMO considers that grandfathering eligibility would not be appropriate. A determination that stricter accuracy/bias thresholds were necessary to preserve the integrity of the WDRM would make it inappropriate for loads to continue to operate under the WDRM which did not meet the then current accuracy/bias thresholds.

4.4.3. AEMO's conclusion

AEMO will retain in the final Policy the position of not grandfathering baseline eligibility in the event of a change to the accuracy/bias threshold.

4.5. New baseline methodologies

4.5.1. Issue summary and submissions

At the start of the WDRM, DRSPs will be able to choose among the Methodologies, similarly to RERT. The Methodologies will be outlined in the Register. Additional baseline methodologies, including potentially those suited to temperature driven loads, will be considered by AEMO for development from April 2022.

In response:

- VIOTAS strongly supported the preparation of a new baseline development process, where applications can be made to develop new methodologies. However, the proposed commencement of this process on 1 April 2022 will significantly delay the entry of new types of loads with suitable baselines. There may be scope for AEMO to use findings from the ARENA trial, to begin work on new methodologies, without impacting implementation of the WDRM.
- PIAC supported the views of a number of stakeholders in for the First Stage Consultation that alternative baseline methodologies should be developed, particularly for temperature sensitive loads. PIAC supported the approaches proposed by Enel X in its submission to account for temperature sensitivity, in particular, removing the proposed Adjustment Cap.
- Shell Energy considered that as more baselines are accepted into the WDRM, the accuracy and bias thresholds should become more stringent, in order to avoid some loads aiming to cherry-pick a less stringent baseline, when a more accurate baseline is available. This continual improvement should be a goal of AEMO for the WDRM, as it continues beyond this first summer of operation.
- EnelX supported the comments in other submissions in the First Stage Consultation that alternative baseline methodologies are needed, particularly for temperature sensitive loads.
- EnelX suggested that there are alternative approaches for temperature sensitive loads. These approaches include the PJM baseline methodology. This methodology addresses temperature dependency by using a weather sensitive adjustment factor. This methodology may be worth considering, even though it is more complex than an uncapped baseline adjustment.

4.5.2. AEMO's assessment

AEMO's approach for the start of WDRM is to develop a baseline methodology which minimises time and cost to market and allows for as wide a participation as possible, while ensuring that baselines are predictable, to safeguard the WDRM's integrity. AEMO understands that the initial baseline methodology and its variants will not suit every participant, and may not be suitable to temperature sensitive loads.

AEMO encourages all parties with alternative methodologies which can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and would materially increase participation in the WDRM to propose these methodologies to AEMO for consideration from Q2 2022, using the process in the WDR Guidelines[4].

[4] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-2021.pdf?la=en

4.5.3. AEMO's conclusion

AEMO concludes that there will be no changes made to the final Policy with respect to this issue.

5. FINAL DETERMINATION

AEMO's final 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
Register	Baseline Methodology Register
RRMSE	Relative Root Mean Squared Error
TI	Trading Interval
WDRM	Wholesale Demand Response Mechanism
WDRU	Wholesale Demand Response Unit

APPENDIX B. BASELINE ELIGIBILITY COMPLIANCE AND METRICS POLICY

The Policy has been published to accompany the Final Report. The Policy and Final Report are available at:

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

APPENDIX C. PARTICIPANT SUBMISSIONS SUMMARY – SECOND ROUND CONSULATION

No.	Issue	AEMO comments
VIOTAS		
1	• It is disappointing that AEMO has proceeded to adopt the CAISO 10 of 10 baseline methodology with the adjustments for accuracy and bias threshold. The methodology itself is quite robust but it is not a simple methodology that customers can easily comprehend. The adjustments not only add to the complexity but also introduce penalties for actions that are often necessary by customers or are out of their control. • We would have thought three years of ARENA RERT trials would have proved to AEMO how unsuitable this combination of baseline and adjustments have been. For AEMO to suggest that customers have other DR programs to choose from as alternatives to WDRM flies in the face of the spirit with which the AEMC has introduced this program; a mechanism that will allow customers to participate in the wholesale electricity market, without mention of limiting the type of loads/customers who can participate.	• Throughout the extensive consultation on WDRM, AEMO has indicated that for the start of WDRM a RERT like baseline methodology would be implemented due to timing and cost constraints. • WDR is a voluntary scheme, designed to allow DRSPs to bid in when they believe they can maximise their return from WDR. Baseline methodology design features intended to ensure accurate and unbiased baselines cannot be described as penalties. • A fundamental principle of WDRM is ensuring predictable baselines, so that all participants can have confidence that the WDR paid for is actually delivered. For the start of WDRM, AEMO believes a RERT like baseline methodology will deliver the required predictability while allowing sufficient access for WDRM participation.
2	• For AEMO to also suggest that there are four baseline methodologies is somewhat puzzling if not misleading as it is the one methodology applied four different ways. Admittedly, some loads are highly dependent on time of use/day/week, with an obvious repetitive pattern, but AEMO certainly cannot claim it has four methodologies.	• Throughout the extensive consultation on WDRM AEMO has indicated that for the start of WDRM, one baseline methodology framework will be implemented, i.e. the CAISO 10 of 10. • The description of the four baseline methodologies individually is only for clarity purposes, as while sitting under the same framework, each of the four methodologies has differences in how baselines are calculated for settlements and for the predictability of load analysis. • The four baseline methodologies also afford a level of flexibility to the extent to which the NMI can meet the eligibility criteria. For example, business days only.

No.	Issue	AEMO comments
3	• VIOTAS does not trivialise the issue of finding a suitable baseline, or as the case may be, multiple baselines. This is an exceptionally difficult task and certainly one method does not suit every type of load shape. Neither does VIOTAS seek to offer an alternative to the proposed baseline as that time has passed. We acknowledge that baselining is the key element for a successful WDRM and therefore AEMO must give regard to the following attributes for any baseline: o Accuracy in determining the counter factual – what would have the customer load been, had it not curtailed, o Fairness – reasonable value attributed to the action and fairly distributed the customer and the market, o Simplicity/Transparency – where possible customers should be able to calculate their own contribution given their meter data and/or their demand profile either side and during an event.	• AEMO's approach for the start of WDRM was to develop one baseline methodology framework (with 4 options available varied by day type). The initial baseline methodologies may not suit every participant, however this approach: o Minimises cost and time to market. o Aims to balance accuracy, simplicity, eligibility and integrity. o Does not preclude the development of further baseline methodologies in the future. • AEMO encourages all proponents with alternative methodologies that can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and materially increase participation in the WDRM to put the detail of these forward to AEMO for consideration from Q2 2022 for AEMO's assessment.
4	• Some participants might add that there should also be integrity, meaning that customers should not be allowed to distort or game their results. While certainly not seeking to encourage such misbehaviour, VIOTAS is of the view that in the main customers generally want to do the right thing. However, where they don't, it becomes patently obvious in the event response, and a manual intervention can be easily and quickly be enacted in those very few cases. Such intervention could lead to either a penalty and/or clawback and/or in repeated or extreme cases, expulsion of that customer from the WDRM. There is no need for penal adjustments to be embedded in the methodology as that disadvantages everyone instead of just those it is meant to penalise.	• AEMO's aim in developing the initial baseline methodologies and the accuracy and bias thresholds has been to: o allow for wide eligibility in WDRM while ensuring baselines are accurate and unbiased. o have a robust process around eligibility assessment and compliance testing. o minimise the opportunity for gaming of baselines. • AEMOs ability to respond to participant 'misbehavior' is limited to what is allowed under the Rules, which do not prescribe penalties or a clawback mechanism.

No.	Issue	AEMO comments
5	• AEMO's suggested baseline is only accurate and fair for the flattest of load profiles, in which case far simpler techniques than the CAISO 10 of 10 baseline could be employed. AEMO's approach is highly discriminatory and robs the NEM of a significant proportion of loads that could participate competitively in the wholesale market, particularly large volatile loads and smaller fluctuating loads. • We should also acknowledge that there are no losses to consider with DR, because the action occurs at the customer premise. Therefore, to promote fairness, participating customers should be rewarded for reducing line losses (from generation to load) that would otherwise be incurred. DR is a discretionary process for customers, where they trade flexibility in the production/processes for economic and/or altruistic reasons. Such action comes at a cost and an imposition to the customer which must be fairly compensated and where further value can be credited to the customer's actions the market must apportion that benefit fairly.	• Assessment by consultants Oakley Greenwood of a variety of RERT-like baseline methodologies indicates that an accuracy threshold of 20% would result in an estimated: o 17% to 20% of NMIs with annual consumption of 160 MWh to 750 MWh being eligible. o 34% to 37% of NMIs with annual consumption of 750 MWh to 100 GWh being eligible. • AEMO believes that this indicates a significant number of NMIs have loads predictable enough to participate in WDRM at market start. • Developing accurate/unbiased baselines for volatile/fluctuating loads is inherently very difficult, and for this reason WDRM may be unsuitable for those load types. As previously stated, AEMO encourages all proponents with alternative methodologies that can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and materially increase participation in the WDRM to put the detail of these forward to AEMO for consideration from Q2 2022 for AEMO's assessment • The settlement process for WDR applies both distribution loss factors and transmission loss factors applicable to the connection point. In this way the contribution to reduction in line losses should be accounted for.

No.	Issue	AEMO comments
6	Given the inevitability of what has been proposed, VIOTAS supports AEMO's proposal to review the eligibility and compliance methodology, including the accuracy and bias thresholds, annually starting in 2022 after the first summer of WDRM operation. While it is important that care is taken to fairly treat any WDRUs already registered in respect of any changes to baseline metrics, it is also highly important for AEMO to consider feedback and lessons learnt in the process of implementing the WDRM to ensure that the accuracy / bias thresholds are striking the right balance between maximising NMI eligibility and ensuring baseline predictability. An annual review based on a transparent consultation process is an appropriate way to realise this, once DRSPs have operational portfolios of WDRUs and have gathered real experience and evidence of the true implications of these parameters.	• 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: o AEMO's baseline eligibility and compliance processes result in WDR participation only of loads which have accurate and unbiased baselines; and o The demand response provided under the WDRM is real and additional. • Participants are always encouraged to provide AEMO with feedback on the mechanism, whether through the various consultative forums, the formal consultation processes or through direct contact with the relevant operational team.
7	Strongly support the preparation of a new baseline development process, where applications can be made to develop new baseline methodologies. The proposed commencement of this process on 1st April 2022 for this process will significantly delay the entry of new types of loads with suitable baselines. There may be scope for AEMO to use findings from the ARENA trial, to begin work on new baseline methodologies without impacting implementation of the WDRM.	• The April 2022 timeframe for consideration of any new baseline methodologies for implementation is based on tight time constraints for the start of WDRM in October 2021, as well as AEMO wanting to assess WDRM operations after the commencement of the mechanism. • For the implementation of any new baseline methodologies in the future, AEMO will consider a range of information including that provided by proponents as well as any information from programs such as the ARENA RERT trial.
8	Supports AEMO on the eligibility and compliance change to the trading intervals window from 3pm to 8pm, which coincides with the time of peak demand for temperature dependent loads.	• AEMO notes VIOTAS's support for the trading intervals used in eligibility assessment and compliance testing to be those between 3pm to 8pm.
9	Appreciate that the proposed thresholds for baseline compliance metrics in the form of the 20% accuracy threshold and ±4% bias threshold, help to ensure a broader range of loads to participate in WDR than in RERT. Promoting higher levels of eligibility and therefore participation, is paramount to the success of WDRM, however we do believe AEMO could have gone further.	• Accuracy and bias metrics have been set with the view of maximising participation while ensuring sufficient baseline predictability to ensure scheme integrity. • AEMO believes the accuracy and bias thresholds strike the right balance between WDRM accessibility and scheme integrity.

No.	Issue	AEMO comments
	Public Interest Advocacy Centre	
1	PIAC generally supports AEMO's draft determination, however is concerned a large proportion of loads may be ineligible due to proposed participation constraints. We make recommendations for how AEMO can work to increase participation and comment on various aspects of the draft determination.	• In setting the accuracy and bias thresholds and the processes around eligibility assessment and compliance testing, AEMO is aiming to balance NMI eligibility and baseline predictability.
2	Accuracy threshold • While PIAC supported the 20% accuracy threshold in our submission to the Issues Paper, we support concerns of major WDR providers that the 20% threshold, combined with the cap on 'day-of' adjustments and limited baseline methodology will exclude a large proportion of loads, particularly those which are variable and temperature sensitive and therefore high value WDR. • Strongly support AEMO reviewing in March 2022 whether the accuracy threshold is encouraging meaningful volumes of demand response into central dispatch and allowing the development of WDR. • Strongly encourage AEMO to considers ways of addressing inefficient dispatch and uncertainty other than through an accuracy threshold. In particular: o day-of baseline methodology adjustments; o reputational, regulatory and financial incentives and obligations on DRSPs; o short-interval telemetry requirements. • We support Enel X's position that accuracy thresholds should not restrict participation in the mechanism, but rather should support selection of a baseline methodology that allows sufficient predictability of a load for settlement purposes.	• AEMO understands that the initial suite of baseline methodologies will not suit every participant, and some NMIs will not have loads that are predictable or unbiased enough under the available baseline methodologies to participate. However, this approach: o Minimises cost and time to market o Aims to balance accuracy, simplicity, eligibility and integrity. o Does not preclude the development of further baseline methodologies in the future • The aim of the accuracy threshold is not to restrict participation in WDRM but rather to ensure that the baselines used are predictable enough to ensure all the integrity of the mechanism, and demand response paid for is actually delivered. • AEMO doesn't believe that increasing the accuracy threshold is the best way of accommodating those loads which are temperature sensitive. Rather, additional baseline methodologies (including potentially those suited to temperature driven loads) may be developed in the future, and will be considered by AEMO from April 2022. • AEMO will apply all obligations to DRSPs (and other market participants) as stipulated under the rules.

No.	Issue	AEMO comments
3	Bias Acknowledge AEMO is obligated under the NER to include a bias metric, however, we note the 4% threshold, combined with other design decisions, will likely result in a large portion of loads being ineligible. We support calls from a number of stakeholders that the bias metric is not clearly necessary and recommend AEMO continue to seek alternative means of dealing with bias that do not unnecessarily restrict participation.	• The assessment of baselines for bias is a Rules requirement and will continue to be part of baseline eligibility assessment and compliance testing unless that Rules requirement is removed and/or changed. 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 bias threshold of ±4 would not materially restrict NMI eligibility. • The bias threshold will be reviewed in 2022 to ensure that the right balance is being struck between WDRM eligibility and baseline bias.
	Future changes to baseline metrics PIAC supports AEMO's proposal to review metrics annually. We do not support the grandfathering of eligibility arrangements by default, and recommend AEMO consider whether grandfathering is appropriate once the impacts of changes to metrics on consumers and DRSPs can be determined.	• AEMO notes PIACs support for annual review of the metrics. • AEMO notes PIACs support for no grandfathering of eligibility. • 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.
	Alternative baseline methodologies We support calls from a number of stakeholders in submissions to the Issues Paper for alternative baseline methodologies to be developed, particularly for temperature sensitive loads. We support the approaches proposed by Enel X in its submission to this process to account for temperature sensitivity, in particular, removing the proposed cap on day-of adjustments.	• While AEMO notes PIACs support for removing the cap on the day adjustments, it is not part of the consultation on this Policy document. • The purpose of on the day adjustments is to allow for some variability of load on the day of the WDR event. AEMO doesn't believe that removing the cap from on the day adjustments would be the best way of dealing with temperature sensitive loads while maintaining integrity in the mechanism for all participants. Rather, additional baseline methodologies (including potentially those suited to temperature driven loads) may be developed in the future, and will be considered by AEMO from April 2022. • AEMO encourages all proponents with alternative methodologies that can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and materially increase participation in the WDRM to put the detail of these forward to AEMO for consideration from Q2 2022 for AEMO's assessment.

No.	Issue	AEMO comments
	Eligibility and compliance excluded days We welcome AEMO providing more guidance around what constitutes an eligibility/compliance excluded day, in particular the inclusion of a non-exhaustive list of eligibility excluded days.	• Noted.
	Shell Energy (previously ERM Power)	
1	• In its response to Shell Energy's comments on the impact of the 20 per cent accuracy threshold on demand forecasts, in section 4.1.2, AEMO in our view inaccurately indicates that "RERT baseline accuracy is measured on an aggregated basis". While this may be correct for some Reliability and Emergency Reserve Trader (RERT) contracts where a number of smaller loads are aggregated, RERT dispatched from larger loads would be dispatched and assessed on an individual NMI basis. • Our view regarding AEMO's statement is further supported by review of AEMO's quarterly RERT contracting reports which indicates that RERT was overwhelmingly dispatched from large loads, many of which may seek to register as wholesale demand response loads. In our view, for AEMO to argue that RERT loads overall are assessed for dispatch accuracy on an aggregated basis seeks to avoid the Australian Energy Market Commission's recommendation 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." • Based on loads reported by AEMO as participating in RERT, we also disagree with AEMO's view that "a single NMI with a load of 30 MW or more will be rare" and believe that loads of such size or greater will seek to participate as wholesale demand response loads.	• While it's hard to forecast WDRM participation with certainty, through conversations with prospective DRSPs, AEMO expects WDRM participation to be primarily from aggregated loads, with few loads to be above 30MW. • AEMO maintains that the accuracy thresholds used for RERT and WDRM are not directly comparable due to the differences in the schemes and the 20% accuracy threshold remains appropriate for the start of WDRM.

No.	Issue	AEMO comments
2	• Similarly, in section 4.7, AEMO in our view incorrectly points to error trigger thresholds for semi-scheduled generating units dispatch compliance monitoring. These error forecasts relate to the conformance calculation for compliance with dispatch instructions rather than the accuracy levels that AEMO uses when preparing and amending demand and wind and solar forecasts. Our understanding is that for wind and solar generation AEMO uses accuracy levels far below the 20 per cent accuracy threshold or even the 10 per cent accuracy threshold recommended in our submission for wholesale demand response. This would seem to run counter to Clause 3.10.3 in the Final WDRM Rule 3.10.3 which 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)." • Further supporting this is AEMO's Power System Operating Procedure SO_OP_3710 – Load Forecasting, which in section 7 sets out the forecast error thresholds in MW for each region where AEMO determines that a revision of its pre-dispatch forecasts is triggered. These forecast error thresholds are arguably much lower than 5 per cent, let alone the 10 per cent value recommended in our previous submission.	• The NER does direct AEMO to have regard to its relationship to AEMO's demand forecast for pre-dispatch and semi-scheduled generation. It does not direct AEMO to set accuracy thresholds in WDRM to match those for wind and solar forecasts. • AEMO did consider these factors when setting the accuracy threshold and determined that the 20% accuracy threshold was unlikely to have any impact on these demand forecasts. • Additionally, as stated in the draft report, the error rates relevant for pre-dispatch demand forecasts are applied at an instantaneous, regional level and on a fixed MW basis (historically derived from percentage of demand). This is very different to the baseline accuracy thresholds and their application for each WDR aggregation. • AEMO will review the accuracy thresholds in 2022 and will consider any effect the thresholds set have on demand forecasts and make changes to the thresholds if necessary, accordingly.

No.	Issue	AEMO comments
3	• We remain concerned that the 20 per cent accuracy threshold fails to comply with the Wholesale Demand Response Mechanism Final Determination and may lead to poor outcomes in demand forecasts and dispatch. The cost impacts of this will be borne by consumers. • The Draft Determination and Report seems to point to a fact that AEMO wants to facilitate greater participation in this first summer of operation which would seem to increase the risks of poor outcomes for consumers overall if less accurate baselines are used. AEMO will allow on-the-day adjustments of +/- 20 per cent which would seem to provide greater scope for loads to remain baseline compliant within a tighter accuracy threshold despite higher than usual load around the time of a demand response event. • We consider that a 10 per cent accuracy threshold would meet the requirements set out in the Final Rule as well as the intent of the AEMC's comments in the Final Determination that AEMO "should require baselines to exceed the levels of accuracy considered 'good' in the AEMO-ARENA demand response RERT trials" without unnecessarily limiting participation. • Further, it would meet the AEMC's objective that "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." • We do not agree with AEMO that the 20 per cent accuracy threshold meets the requirements of the Rules or the objectives as set out by the AEMC in the Final Determination.	• AEMO notes Shell Energy's disagreement with AEMO setting the accuracy threshold at 20%. • The NER requires that AEMO must determine the metrics setting out the parameters for assessing the baseline, including the assessment of accuracy. • The 20% accuracy threshold for the start of WDRM operations strikes the right balance between eligibility and baseline predictability. The threshold, including this balance, will be reviewed in 2022, when relevant aspects of the WDRM are more certain. • Further, while ensuring sufficient baseline accuracy at the eligibility assessment stage is important for WDRM integrity, there are sufficient safeguards applied at dispatch 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).

No.	Issue	AEMO comments
5	• Shell Energy wants to see wholesale demand response in the market in accordance with the provisions of the AEMC's Final Determination We believe it can play an important role in helping to balance supply and demand at critical times and deliver overall benefits to consumers. • Yet, wholesale demand response is not an end of itself. If the WDRM as applied by AEMO delivers inaccurate outcomes, all parties are worse off – from the wider consumers who may be paying for something not delivered and providers of wholesale demand response who may be paid too little for what they have delivered. Shell Energy remains convinced that the development of more baselines is what is needed to expand participation in the WDRM rather than less stringent accuracy and bias metrics.	• AEMO's approach for the start of WDRM is to develop a baseline methodology that minimised time and cost to market, allow for as wide participation as possible while ensuring that baselines are predictable to ensure the integrity of the scheme. • AEMO's agrees that the initial baseline methodology (and its variants) will not suit every participant and the development of further baseline methodologies in the future may be needed to expand participation. • AEMO encourages all proponents with alternative methodologies that can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and materially increase participation in the WDRM to put the detail of these forward to AEMO for consideration from Q2 2022 for AEMO's assessment.
6	• Support AEMO's comments that it will not grandfather eligibility based on these initial settings. We consider this is an important decision as it means that should the accuracy or bias thresholds need improving – particularly as new baselines are developed – AEMO will not be locking in poor performing loads into WDRM. • Shell Energy considers that it will be important that as more baselines are accepted into the WDRM, the accuracy and bias thresholds should become more stringent so as to avoid some loads aiming to cherry-pick a less stringent baseline, when a more accurate baseline is available. This continual improvement should form one of AEMO's goals for the WDRM as it continues beyond this first summer of operation.	• AEMO notes Shell Energy's support for not grandfathering WDRM eligibility if the metrics are changed. • AEMO agrees that any gaming of WDRM, including cherry-picking of baselines should be avoided, and will consider such implications if and when any new baseline methodologies are added in the future.
Enel X		

5	Accuracy Threshold • As the Oakley Greenwood analysis shows, and Enel X's own analysis confirms, a 20 per cent RRMSE threshold will mean that a significant proportion of WDR-capable C&I loads will not be eligible to participate in the mechanism. Excluding so many WDR-suitable loads at the outset will reduce the effectiveness of the mechanism and runs counter to its objective: to allow meaningful volumes of demand side participation in central dispatch. It will be difficult for prospective DRSPs to build a convincing business case to participate when so few suitable customers will be eligible, particularly in light of other design decisions (e.g. caps on day of adjustments). • NMIs that meet a 20 per cent threshold tend to be smaller loads with flatter load profiles. The loads that are most valuable to the WDR mechanism are the larger and more variable loads, particularly temperature sensitive loads. Increasing the RRMSE threshold will mean more of these types of loads will be eligible to participate. • Importantly, AEMO's concern that a higher accuracy threshold may lead to inefficient dispatch and increased uncertainty as to the amount of demand response available can be addressed in several ways: o Day-of adjustments. Day-of adjustments will allow DRSPs to adjust the baseline methodology to reflect the amount of WDR available more accurately, particularly on very hot days when C&I consumption tends to be higher and WDR dispatches are most likely to occur. The ability to adjust makes baselines more accurate. o Incentives and obligations. DRSPs will also be subject to 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. Any failure to deliver the offered amount will be caught by dispatch compliance obligations. It's also important to recognise that DRSPs have an incentive to recruit loads that are reasonably predictable, as the DRSP will wear the risk of non-delivery from extremely variable or unpredictable loads.	• Assessment by consultants Oakley Greenwood of a variety of RERT-like baseline methodologies indicates that an accuracy threshold of 20% would result in an estimated: o 17% to 20% of NMIs with annual consumption of 160 MWh to 750 MWh being eligible. o 34% to 37% of NMIs with annual consumption of 750 MWh to 100 GWh being eligible. • AEMO believes that this indicate a significant number of NMIs have loads predictable enough to participate in WDRM. • Developing accurate/unbiased baselines for volatile/fluctuating loads is inherently complex. The initial suite of baseline methodologies may not be suitable for those load types. • The day of adjustments, incentives and obligations on DRSPs and telemetry requirements are all part of WDRM and together with the prescribed baseline methodologies and appropriately set accuracy and bias metrics all ensure ensures the scheme is robust, baselines are accurate and unbiased, and WDR that is paid for is actually delivered.

No.	Issue	AEMO comments
	• Telemetry requirements. DRSPs will be required to provide AEMO with a constant stream of data about the amount of WDR available. Individual NMI performance and settlement against the baseline is a matter for DRSPs to deal with in their relationships with WDR customers.	
	• Conceptually, a DRSP might seek to game the market by only offering in intervals where it has determined that there will be a baseline error in its favour (i.e. a higher baseline). However, the likelihood of this occurring is low, for three reasons: 1. It would rely on those intervals coinciding with times when the DRSP would seek to participate (i.e. high price intervals), and the DRSP actually being dispatched in those intervals. 2. NMIs will be subject to a baseline bias calculation, which is intended to make sure that any baseline errors in the customer's favour are balanced out by errors against the customer's favour. 3. The likelihood of all customer baselines in an aggregated DUID having errors in the DRSP's favour, such that it would seek to be dispatched, is low.	• AEMO's aim in developing the initial baseline methodologies and the accuracy and bias thresholds has been to: o allow for wide eligibility in WDRM while ensuring baselines are accurate and unbiased. o have a robust process around eligibility assessment and compliance testing. o minimise the opportunity for gaming of baselines. • As baseline methodologies and accuracy and bias thresholds are applied equally across all loads participating in WDRM, AEMO is not making judgment calls on how particular loads or classes of loads will or will not behave. Instead AEMO is setting up the 'rules' of WDRM in a way that ensures the scheme is robust, baselines are accurate and unbiased, and WDR that is paid for is actually delivered. • The bias calculation is performed at eligibility assessment and compliance testing. It is not calculated for individual events when WDR is dispatched and as thus will not have an effect on participant behavior on dispatch days.
	Baseline accuracy thresholds should not be used to restrict participation in the mechanism, but rather to support selection of a baseline methodology that allows sufficient predictability of a load for settlement purposes. Increasing the RRMSE threshold will increase the number of NMIs that will be able to participate, while day-of adjustments, regulatory obligations, incentives and telemetry will ensure the integrity of dispatch.	• The baseline accuracy thresholds purpose isn't to restrict participation in WDRM, rather it's there to ensure loads participating in WDRM can have a baseline predictable enough that all participants in the scheme can be sure that WDR that is paid for is actually delivered. • AEMO believes that there are a significant number of loads predictable enough to be eligible to participate in WDRM under the current accuracy and bias thresholds.

No.	Issue	AEMO comments
6	Other markets use more flexible approach • 20 per cent RRMSE thresholds are used in other markets, but there are notable differences. In general, RRMSE scores are used to select a suitable baseline methodology for a load or portfolio, not to decide whether it should be allowed to participate at all. • In Japan's "negawatt trading" and "1' reserve" markets there are several attempts to allow the load to participate by finding a suitable baseline methodology. Under what is being proposed for the WDRM, there is only one step, and only one baseline methodology to choose from. If a load does not meet the RRMSE threshold for that methodology, it cannot participate at all. • PJM also has a 20 per cent RRMSE threshold but there are several differences to note.	• All markets and demand response mechanisms differ in a myriad of small and large ways and are not directly comparable. That is one reason why AEMO decided to start WDRM with a RERT like baseline methodology that has already been implemented in the NEM context. • Additionally, its why AEMO believes that WDRM operations including the accuracy and bias metrics should be reviewed after the first summer of operations to identify learnings and any required changes to ensure the mechanisms adequately balances accuracy, simplicity, eligibility and integrity.

No.	Issue	AEMO comments
7	Bias threshold • Recognise that AEMO is constrained by the NER here and must include a bias assessment in its eligibility and compliance tests. However, it is important to point out the impact that other design decisions will have on WDR customers' ability to meet the ±4 per cent threshold. • Enel X has conducted analysis on some sample customer loads and has found that a 20 per cent cap on day-of adjustments (as AEMO is proposing) will push many loads' bias result lower than the -4 per cent threshold. That is, a cap on baseline adjustments will set a lower than actual baseline for many loads, particularly on hot days when they are likely to be consuming much more. Because the baseline consistently underestimates actual load, the ARE calculation delivers a high negative bias and renders those loads ineligible to participate. • The proposed cap on day-of adjustments will decrease baseline accuracy and increase baseline bias, the reverse of what AEMO is trying to achieve. • Our conversations with AEMO indicate that it will not consider removing the cap or including additional baseline methodologies for market start. As communicated in those meetings, we are not supportive of this approach as it will significantly limit the number of loads eligible to participate at market start. However, if this remains AEMO's position, we ask that the bias threshold be increased. Alternatively, AEMO could consider allowing loads with a bias result that exceeds the threshold to participate if the bias is against the DRSP's favour.	• 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 bias threshold of ±4 would not materially restrict NMI eligibility. • The bias threshold will be reviewed in 2022 to ensure that the WDRM eligibility and low bias baselines is appropriately balanced. • The assessment of baselines for bias is a Rules requirement and will continue to be part of baseline eligibility assessment and compliance testing unless that Rules requirement is removed and/or changed. • NMI bias is calculated over a 20-50 day time period (depending on the baseline methodology applicable) for eligibility assessment and compliance testing. Thus, in AEMO's view it's unlikely that the 20% cap on adjustment will impact a load's baseline (assuming the load is fundamentally suited to WDRM) on enough number of days over that time period to have a significant impact on the bias value calculated for the load. • AEMO encourages all proponents with alternative methodologies that can demonstrably and reliably meet the accuracy and bias metrics, are compliant with the NER and materially increase participation in the WDRM to put the detail of these forward to AEMO for consideration from Q2 2022 for AEMO's assessment. • While alternative baseline methodologies may be developed in the future that better suit temperature sensitive loads, any capping arrangement will be specific to that baseline methodology. AEMO does not anticipate creating a baseline methodology based on the 'CAISO 10 of 10' framework that simply removes the cap on adjustments.

No.	Issue	AEMO comments
8	Future changes to baseline metrics • Support AEMO's proposal to review the baseline metrics annually, in consultation with stakeholders, to determine whether they are achieving the objectives of the mechanism. • However, we suggest that AEMO not decide on whether eligibility arrangements will be grandfathered until that review is underway and the impact of such arrangements is better known. • If, for some reason, the eligibility requirements are tightened and grandfathering arrangements do not apply, WDR loads that enrolled after market start would need to exit, potentially just months after they entered. This presents an unnecessary risk for prospective DRSPs at this stage.	• Note EnelX's support for reviewing the metrics annually. • 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. • AEMO believes that grandfathering eligibility would not be appropriate, as if it was determined that stricter accuracy/bias thresholds were necessary to preserve the integrity of the WDRM it would not be appropriate for loads to continue to operate under the mechanism that did not meet the then current accuracy/bias thresholds.
9	Alternative baseline methodologies • We support the comments made by Green Energy Trading and ERM Power in their submissions to the issues paper that alternative baseline methodologies are needed, particularly for temperature sensitive loads. • Temperature sensitivity can be accounted for by removing the proposed cap on day-of adjustments. As discussed with AEMO, a 10 of 10 baseline with a 20% cap on day of adjustments will not provide an accurate baseline for many loads, and will undervalue (often significantly) the quantity of DR they provide, particularly on warm days when WDR is highly valued. The cap incentivises these loads to: o provide less DR, either by reducing their MRC or limiting the amount of WDR they offer to the market, or o not provide any WDR at all, and instead continue to draw load (sometimes over 100 per cent more than normal consumption levels) thereby contributing to, not alleviating, tight supply/demand conditions.	• Throughout the extensive consultation on WDRM AEMO has indicated that for the start of WDRM, one baseline methodology framework will be implemented, i.e. the CAISO 10 of 10. • The description of the four baseline methodologies individually is only for clarity purposes, as while sitting under the same framework each of the four methodologies has differences in how baselines are calculated for settlements and for the predictability of load analysis. The four baseline methodologies also afford a level of flexibility to the extent to which the NMI can meet the eligibility criteria. For example, business days only. • AEMO's approach for the start of WDRM is to develop baseline methodologies that minimised time and cost to market, allow for as wide participation as possible while ensuring that baselines are predictable to ensure the integrity of the scheme. • AEMO's understands that the initial baseline methodology (and its variants) will not suit every participant and the development of further baseline methodologies in the future may be needed to expand participation.

No.	Issue	AEMO comments
10	• While we appreciate that AEMO is keen to minimise the costs and complexity of implementation, the 20 per cent cap presents a significant barrier to participation and will render a significant number of WDR-suited loads commercially unviable. • There are alternative approaches if AEMO is not open to uncapped adjustments. For example, PJM addresses temperature dependency using a weather sensitive adjustment factor, which represents the kW change in load for each degree of temperature change within a specified range. The factor is used to adjust the hourly baseline (up or down) to compensate for the average hourly temperature differences between the baseline basis days and the temperature of the event hour. While more complex than an uncapped baseline adjustment, it may be an alternative worth considering.	• While AEMO notes EnelX's request for removing the adjustment cap, it is not part of the consultation on this Policy document. • The purpose of on the day adjustments is to allow for some variability of load on the day of the WDR event. AEMO doesn't believe that removing the adjustment cap would be the best way of dealing with temperature sensitive loads while maintaining integrity in the mechanism for all participants. • 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.
11	We urge AEMO to introduce at least three baseline methodologies for market start, including one that can accommodate temperature sensitive loads. AEMO's current approach (as set out in section 2.3) is not four baseline methodologies, it is one methodology differentiated by day type. As noted above, other markets (e.g. Japan, PJM) have a range of approved baseline methodologies that AEMO could draw upon.	• For WDRM start in October 2021 AEMO will be implementing the one baseline methodology framework (CAISO 10 of 10) with four day type options. While these baseline methodologies may not suit some loads, this has been necessitated by the tight implementation timeframe and cost constraints. • Please note that while there may be alternative baseline methodologies developed in the future that may better suit temperature sensitive loads, any capping arrangement will be specific to that baseline methodology. AEMO doesn't not anticipate creating a baseline methodology based on the CAISO 10 of 10 framework that simply removes the cap on adjustments.

[5] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-2021.pdf?la=en

No.	Issue	AEMO comments
12	Eligibility and compliance TIs window • We support the proposal to change the eligibility and compliance TI windows to 3-8pm. • We also support the ability for AEMO to consider changes to these windows in future, and potentially restricting bidding to particular windows to maximise participation in the mechanism. • We do not support AEMO's decision to use market time for the eligibility and compliance TI windows, and we encourage AEMO to again consider using local time. Using local time will mean that a load's eligibility and compliance will be assessed during TI windows that better reflect their daily business operations and daylight savings changes, and therefore the windows in which they are most likely to be dispatched. It would be helpful to understand what additional costs/complexity would be involved from AEMO's end if it were to accommodate local time.	• Note EnelX's support for change in the eligibility and compliance TI windows to 3-8pm. • Note EnelX's support for future changes in the eligibility and compliance TI windows. • AEMO has investigated the issue of using market time vs local time for eligibility /compliance calculations. AEMO systems use market time and using local time for assessing eligibility and compliance would require data to be converted. This is a complex task and AEMO doesn't not believe sufficient NMIs would be impacted to perceptibly affect WDRM accessibility. • In its 2022 WDRM review, AEMO will examine whether the use of market time has led to any eligibility/compliance issues.
13	Eligibility and compliance excluded days • We support the proposal to include a non-exhaustive list of example eligibility/compliance excluded days. This will 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. However, we note that dispatch days (e.g. days with WDR dispatches, or dispatches for other markets such as FCAS or network support programs) are not included on the list. We recommend that dispatch days be added into the policy alongside the other example excluded days. • We support the ability for a DRSP to propose other activities that might define an eligibility/ compliance excluded day for a particular NMI, if the DRSP provides evidence to support that. • We also support the proposed ability to use 30-min data for the eligibility assessment where 5-min data is not available.	• As eligibility assessment is completed prior to a load being part of WDRM there are no dispatch days relevant to the assessment. • For compliance testing, any dispatch days are excluded, as described in clause 4.5.1 (f) (ii) of the Policy. • AEMO has determined not to include dispatches for other markets such as FCAS or network support programs as eligibility and compliance excluded days.

No.	Issue	AEMO comments
14	Comments on the draft policy • Clause 4.3: Frequency of compliance testing o In our submission to the issues paper we suggested that AEMO conduct its twice-yearly testing using data from summer/winter (rather than the shoulder periods) so that compliance is assessed using data during the times of year WDR loads are most likely to be dispatched. AEMO has maintained its position in the draft policy and notes that it will be able to conduct a compliance test at any time of year. Recognising this, we recommend that AEMO take a flexible and pragmatic approach to the timing of compliance tests to make sure that the lookback window for the test provides data that best reflects the load's normal operations during that period (e.g. is not during a COVID lockdown or extended site maintenance). • Clauses 4.7.2.2 and 4.7.2.3 o We support the proposed changes to these clauses and thank AEMO for providing clarification of their intent. We particularly support the amendments that clarify a DRSP's ability to make a WDRU unavailable for any reason, via the PMS. The proposed approach will facilitate a much quicker and smoother suspension process than what was proposed in the previous consultation.	• The compliance testing timetable in the Policy is indicative only. AEMO will be able to exercise its discretion as to when compliance testing is undertaken. • Additionally, an event such as extended site maintenance would potentially qualify as compliance exclusions days and thus would not impact a loads compliance testing outcome. • Note EnelX's support for ability to make WDRU unavailable through the PMS.

APPENDIX D. PARTICIPANT SUBMISSIONS SUMMARY – FIRST ROUND CONSULATION

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[6] and can be initiated both by AEMO or Market Participants.

[6] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-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[7] and can be initiated both by AEMO or Market Participants.

[7] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-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[8] 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.

[8] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-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[9] 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.

[9] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-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[10] 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.

[10] The final WDR Guidelines are available at: https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/wdr-guidelines/final-stage/wholesale-demand-response-guidelines-mar-2021.pdf?la=en