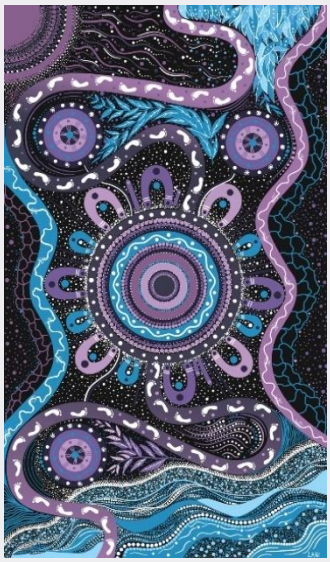
EnelX Baseline Methodology Proposal

December 2024

Final Report

Final report on new Wholesale Demand Response baseline methodologies proposed by EnelX



We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation - a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

The purpose of this document is to provide AEMO's final decisions on new baseline methodologies proposed by EnelX.

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Executive summary

On 27 March 2024, EnelX submitted three new proposed wholesale demand response (WDR) baseline methodologies for AEMO's consideration in accordance with the WDR Guidelines. This Final Report presents AEMO's decisions on EnelX's proposals, alongside additional measures that AEMO intends to introduce to support overall participation levels in the mechanism and address concerns raised by stakeholders as part of this consultation process and more broadly.

This Final Report is accompanied by a short Further Consultation Paper, seeking further stakeholder feedback on some additional matters. This is available on the same consultation page on AEMO's website[1].

Feedback from submissions and broader stakeholder engagement

AEMO released a Draft Report on 26 September 2024 seeking stakeholder feedback on AEMO's initial assessment of EnelX's baseline methodology proposals, which included:

- New baseline methodologies with a shorter (20-day) lookback period for eligibility and compliance and a lower negative day-of adjustment floor to better accommodate seasonally varying and solar PV loads.
- A new High 3 of 10 baseline methodology option to better accommodate weather-sensitive loads (noting AEMO consulted on an alternative High 5 of 10 option).
- Ability for WDR participants to select an 'end of period date' for baseline compliance assessment.

AEMO received five submissions to its Draft Report. All submissions broadly supported introducing at least some new baseline methodology options in alignment with EnelX's proposals and the Draft Report, including baselines that better accommodate loads that are seasonally varying, temperature-sensitive, or have solar PV. Several submissions raised alternative methods for better enabling baselining of solar PV sites, as well as additional risks and considerations.

Some submissions raised broader concerns about the ability for the proposed options to effectively address barriers to participation and improve eligibility in isolation, advocating for AEMO to consider additional measures to support broader participation in the mechanism. Some stakeholders noted that the WDR baseline methodology options and eligibility requirements are much more restrictive in practice than other demand response programs both in Australia and internationally. They considered that this is limiting the pool of eligible loads and the benefits to consumers that can be realised through greater in-market, dispatchable demand side participation in the National Electricity Market (NEM).

In addition to submissions received as part of this process, AEMO has undertaken targeted engagement across a range of stakeholder groups on the role and performance of the WDR Mechanism in the NEM more broadly; this has assisted in informing the approach taken in this final determination.

[1] https://aemo.com.au/consultations/current-and-closed-consultations/wdr-baseline-methodology-consultation-enelx-proposals

Final decisions

In response to the feedback received from submissions and targeted discussions with a range of industry stakeholders, AEMO's final decisions are as follows:

1. **Introduce the following new baseline methodology options**:
    a. New CAISO[2] 10 of 10 baseline methodology options with a shorter 20-day lookback period for eligibility and compliance, to better accommodate seasonally varying loads. This will be implemented in All Days and Business Days Only options.
    b. New High 5 of 10 baseline methodology options to better accommodate weather-sensitive loads. Given the higher complexity of introducing this option, implementation will be part of a second stage. AEMO will need to work through final settings for this methodology, including integration with the existing eligibility and compliance framework and processes to verify that it is only applied to loads for which it is suitable. AEMO considers it will be important to review the performance of this baseline and make adjustments if risks or issues arise.
2. **Introduce an alternative baseline methodology accuracy metric on a trial basis**. AEMO will trial a higher accuracy threshold of 30% for eligibility and compliance as an additional measure to address stakeholder concerns around the restrictiveness of the WDR Mechanism's eligibility requirements. AEMO will review the outcomes of the trial against defined assessment criteria and determine whether to retain the higher threshold, likely in alignment with the 2026 WDR Annual Report. AEMO considers that this adjustment is a cost-effective opportunity to establish an evidence base around the risks and benefits for NEM participants, consumers and the market, and to support broader participation. The WDR Mechanism needs to achieve an appropriate balance between enabling efficient levels of participation and ensuring the integrity of the mechanism.
3. **Consult further on the following topics (please see separate Further Consultation Paper)**:
    a. **An additional CAISO 10 of 10 baseline methodology option with adjustments to better accommodate solar PV sites**. This includes changes to the Eligibility/Compliance Trading Intervals (TI) Window and a reduction in the duration of the adjustment window. AEMO considers this to be a more targeted approach to accommodating the characteristics of solar PV sites than other proposed settings (such as a lower negative adjustment floor) and will seek stakeholder feedback on the suitability, risks and benefits of this alternative baseline methodology option.
    b. **Settings for trialling the alternative baseline methodology accuracy threshold** described above, including assessment criteria, duration, and transition arrangements.
4. **Additional items for review on broader WDR Mechanism settings:**
    a. The Distribution Network Service Provider (DNSP) endorsement process.
    b. The baseline methodology proposal and assessment process.

[2] California Independent System Operator

Implementation

AEMO will take a staged approach to implementation to enable some benefits to be realised sooner and reduce costs, with lower complexity measures to be implemented first. AEMO will publish a notice informing stakeholders of indicative effective dates for baseline methodology changes once these have been confirmed as part of AEMO's broader prioritisation and implementation process.

AEMO will publish a Decision Notice following the conclusion of the further consultation process.

AEMO's review of additional items, including DNSP endorsement requirements and the baseline methodology proposal process, will commence in early 2025 following conclusion of the further consultation.

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1 Background and process

On 27 March 2024, EnelX submitted three new proposed WDR baseline methodologies to AEMO for consideration. A letter of support for the proposals was also provided by Shell Energy.

EnelX's proposal is the first request for additional baseline methodologies that AEMO has received since the WDR Mechanism commenced in October 2021.

1.1 Assessment process

The process for proposing, assessing and developing new baseline methodologies for the WDR Mechanism is outlined in:

- the **WDR Guidelines**, which establishes the assessment and consultation process for AEMO to follow in determining whether to approve new baseline methodologies; and
- the **New baseline methodology proposal – required information**, which outlines the information a proponent should provide to AEMO when submitting a new baseline methodology proposal.

Table 1 below outlines the key milestones and next steps for the assessment process. As described in this Final Report, AEMO has determined that it will seek feedback on further matters alongside this Final Report and will publish its responses and decisions to that additional consultation in February 2025.

Table 1 Timeframes for baseline methodology consultation process

Milestone	Date
Initial assessment	Thursday 4 July 2024 (complete)
Draft Decision communicated to proponent	Thursday 1 August 2024 (complete)
Publish Draft Report & consultation commences	Thursday 26 September 2024 (complete)
Submissions due	Thursday 24 October 2024 (complete)
Publication of Final Report & Decision (this document)	Wednesday 4 December 2024 (delayed from original date of 21 November 2024)
Publication of Further Consultation Paper	*Wednesday 4 December 2024*
Submissions to Further Consultation Paper due	*Thursday 30 January 2025*
Publication of AEMO's response to Further Consultation Paper	*Thursday 27 February 2025*

1.2 EnelX's baseline methodology proposals

Please refer to the Draft Report for a detailed overview of EnelX's proposals and AEMO's initial assessment of the proposals.

EnelX submitted three baseline methodology proposals to AEMO. These are summarised at a high level in Table 2.

EnelX argued that the existing baseline methodologies available to WDR Mechanism participants may work well for certain (typically flat/ highly consistent) loads but do not effectively accommodate other types of suitable loads, including those that vary seasonally, are temperature sensitive, or have solar PV. It noted that eligibility and compliance barriers are preventing the WDR Mechanism from attracting more participation and hence reducing the benefits that can be realised for customers and the market. EnelX considered that Australia is lagging internationally in terms of demand response participation, and that expanding eligibility through more choice in baseline methodologies would "encourage other providers to join the market", "increase participation from current levels" and enhance the WDR Mechanism's ability to deliver against its original objectives.

It considers that key sectors benefitting from expanded eligibility from the proposals would include:

- Commercial refrigeration facilities, which are installing solar PV at increasing rates. EnelX expects that its proposed setting changes would increase eligibility to 80% of commercial refrigeration loads with solar PV.
- The commercial building sector, which is highly temperature sensitive largely due to space heating and cooling requirements.

Table 2 High level summary of initial proposals

Proposed baseline methodology	Summary
CAISO 10 of 10 (all days) with new settings	Proposed to better accommodate seasonal and solar PV loads. New settings: • 20-day lookback window for eligibility and compliance • Uncapped negative day-of adjustments • Open End of Period Date for compliance assessment
High 3 of 10 (all days)	Proposed to better accommodate temperature-sensitive loads. Includes the same three settings as above. Selects the three highest consumption (kWh) days out of the preceding ten eligible days for the baseline.
High 3 of 10 (business days only)	Proposed to better accommodate temperature-sensitive loads. Includes the same three settings as above. Selects the three highest consumption (kWh) days out of the preceding ten eligible days for the baseline, for business days only.

1.3 Overview of draft decisions

Table 3 provides an overview of the draft decisions provided in AEMO's Draft Report and items for which it sought further consultation via submissions.

Table 3 Overview of draft decisions from Draft Report

Draft decision	Explanation
1. **Approve** new All Days 10 of 10 baseline methodology options with a 20-day lookback period and **consult on** negative adjustment floor options including: a. standard negative adjustment floor (-20%) b. lower negative adjustment floor (e.g., -200%).	AEMO considers that there is value in providing baseline methodology options with a shorter 20-day lookback period for eligibility and compliance to better accommodate seasonally varying loads. AEMO will consult on negative adjustment floor options to accompany this methodology. AEMO's view is that a new baseline option should be introduced rather than applying new settings to existing methodologies. This is because shorter lookback period and/or lower negative adjustment floor settings do not necessarily provide for better accuracy and bias results for all load types.

Draft decision	Explanation
2. **Not approve** new High 3 of 10 baseline methodologies.	While AEMO agrees there may be value in a "High X of Y" baseline methodology option to better accommodate temperature-sensitive loads, it does not consider that High 3 of 10 baseline methodologies strike the right balance between baseline accuracy and alignment to conditions under which dispatch is most likely to occur.
3. **Consult on** introduction of new High 5 of 10 baseline methodologies with a 20-day lookback period, including: a. All Days, with standard negative adjustment floor (-20%) b. Business Days, with standard negative adjustment floor (-20%) c. All Days, with lower negative adjustment floor (e.g., -200%) d. Business Days, with lower negative adjustment floor (e.g., -200%).	AEMO is consulting on whether introducing alternative "High 5 of 10" baseline methodology options for accommodating temperature-sensitive loads is likely to support additional participation in the mechanism. This approach utilises more data in calculating the baseline (relative to High 3 of 10 options) whilst also recognising that WDR dispatch events are more likely occur on days when consumption is higher than usual for some loads. AEMO proposes that, if supported, these new methodologies could be accompanied by a 20-day lookback period setting and is seeking stakeholder feedback on negative adjustment floor options. These methodologies will be more resource intensive for AEMO to implement and will require AEMO to further consider how any new "High X of Y" baseline methodology would be incorporated into its eligibility and compliance processes if implemented.
4. **Not approve** open End of Period Date selection for compliance assessment.	AEMO does not consider it is appropriate for WDR Mechanism participants to have choice over compliance testing timeframes, particularly in combination with a short lookback period.

1.4 Approach to analysis

As noted in the Draft Report, this is the first baseline methodology assessment AEMO has undertaken since WDR Mechanism commenced and the lack of participation and operational experience to date makes it challenging to quantitatively assess the potential benefits from introducing the proposed changes. As such, AEMO has assessed and consulted on the benefits, costs and risks of approving the proposals against a broader range of considerations in addition to those raised in the Guidelines.

2 Summary of submissions

AEMO received five submissions to the Draft Report from EnelX, Justice and Equity Centre (JEC), VIOTAS, Shell Energy and Energy Australia. In addition to the submissions received, AEMO has undertaken targeted engagement with a broader range of stakeholders on the performance of the WDR Mechanism, its role in the NEM, its interactions with "two-sided market" reforms, and drivers of current participation rates. This included an industry roundtable in August 2024.

Feedback from submissions is outlined below in two sections:

- The first focuses on feedback received that was specific to the baseline methodology options consulted on in the Draft Report.
- The second summarises feedback from submissions on a broader range of issues, including the overall restrictiveness of eligibility requirements and the role of the WDR Mechanism in the market, both of which are relevant to the effectiveness of the baseline methodology options being introduced.

2.1 Feedback on specific baseline methodology options

2.1.1 Shorter lookback period for eligibility and compliance

All submissions supported introducing new baseline methodology options with a shorter 20-day lookback period:

- Shell Energy considered that this option represents "an effective mechanism to reduce the predictability of load burden" and noted that the current 50-day lookback period is onerous and inhibits participation by seasonal loads. It also noted that "20-day lookback period better recognises the seasonal nature of some loads, while also maintaining strong protections against gaming of baselines. This shorter lookback period will ideally allow for more loads to participate in the WDR Mechanism, increasing competition among generators at times of high spot market prices."
- Energy Australia supported a shorter lookback period to accommodate seasonally varying loads but noted that it should be implemented as an option as the existing 50-day lookback period is more suitable for non-seasonal loads.
- EnelX supported the shorter lookback period. It also provided analysis demonstrating that this option in isolation only enables a modest proportion of additional participation (6% of their sample). EnelX considered that it should be combined with other measures to increase eligibility and participation.
- JEC and VIOTAS also supported this option.

2.1.2 Lower negative day-of adjustment floor baseline methodology option

This option was broadly supported, with some qualifiers:

- VIOTAS supported a lower negative adjustment floor as an option, noting that "it doesn't appear that any unfair advantage could be gained through this approach… for performance measurement, a greater negative adjustment makes it harder to achieve the required response."
- Shell Energy supported uncapped downward adjustments if it does not unfairly advantage or disadvantage seasonal and thermal loads. It considered the approach of a lower negative adjustment floor of -200% would be a reasonable alternative and that other proposed measures, including changing selection days or the eligibility/compliance lookback period, may necessitate a lower adjustment floor.
- Energy Australia considered that more analysis is required to reach a conclusion as to the benefit of this option.
- JEC and EnelX supported this option and considered that a -200% floor was an acceptable alternative to the uncapped adjustment initially proposed by EnelX.
- EnelX also provided analysis demonstrating an improvement in eligibility provided by this option relative to only introducing a shorter lookback period. Subsequent to its submission, EnelX also provided AEMO with examples of load types that are likely to benefit from this setting, including sites characterised by periodic drops in load that would otherwise not be reflected in a baseline with a -20% adjustment floor.

2.1.3 Baseline methodology options for weather-sensitive loads

Feedback was mixed but broadly supportive of introducing temperature-sensitive baseline options:

- JEC supported EnelX's original proposal of a High 3 of 10 baseline option. It considered that this option would increase baselining accuracy for temperature-sensitive loads and that it does not present a risk to the market as the existing accuracy and bias thresholds "provide adequate protection against demand response providers tilting the scales in favour of themselves and the participating consumer." JEC disagreed with the assertion in the Draft Report that the introduction of new options for temperature-sensitive loads would be more resource-intensive to implement and considered that the benefits to consumers would outweigh the costs.
- Shell Energy encouraged AEMO to introduce a High 5 of 10 methodology as early as feasible and agreed with extending the shorter lookback period to High 5 of 10 baseline methodologies.
- VIOTAS suggested alternative options for supporting participation of temperature-sensitive loads. These included a temperature-based selection process where reference days are based on maximum temperatures at defined Bureau of Meteorology sites, and a version of the South Korean "4 of 5" method where "the average of the 2nd, 3rd, 4th and 5th highest demand days out of the 10 previous days is taken". The top demand day is excluded to remove an extreme outlier while still allowing the baseline to reflect the temperature-sensitive nature of the load.
- VIOTAS also raised concerns around how a High 5 in 10 methodology would be integrated into the existing eligibility and compliance framework, with suggestions on alternative ways this could be accommodated.

- EnelX supported a High 5 of 10 option and provided analysis demonstrating that this option enables a material increase in the number of eligible loads in its sample, noting it would be a "critical enabler of Large Industrial load participation with a greater than 10% potential increase in eligibility".
- Energy Australia noted that this option "has a potential risk of underestimating the baseline of loads have not been running at maximum capacity in the lookback period due to varying schedules and/or strategic capacity management. Also, has the potential of gaming the system".

2.1.4 End of period date selection

Views were mixed on the ability for participants to select their own timeframe for AEMO's twice-yearly baseline compliance assessment:

- Energy Australia and Shell Energy agreed with the draft decision not to approve this item.
- VIOTAS noted that issues around selection of the compliance period could be addressed by separately measuring and removing solar PV from the net energy use measured at the site, given that solar PV is a major driver of seasonal volatility.
- JEC disagreed with the draft decision to reject this proposal, noting that "the remaining protections against gaming, as well as the prohibitive cost of demand response gaming under any of the existing or proposed baseline methodologies are adequate."

2.2 Feedback on broader WDR Mechanism issues

Most submissions commented on broader issues with the WDR Mechanism which they considered are likely to limit the benefit derived from implementation of baseline methodology changes if unaddressed. Some submissions advocated for AEMO to consider measures to enhance the participation and performance of the mechanism and benefits to consumers, reflecting on relatively low participation levels to date. AEMO has received similar feedback from broader stakeholder engagement and has determined that these considerations should inform the approach to the final determination to ensure the measures implemented are as effective as possible.

2.2.1 Restrictiveness of eligibility requirements

EnelX considered that the WDR Mechanism has the most restrictive eligibility requirements in the world, which, combined with limited baseline options, is driving slow growth of participation in the mechanism. Similarly, JEC noted that the WDR Mechanism has "disproportionately restrictive eligibility requirements and baselining options when compared to similar schemes internationally" and that this is not in consumers' interests. EnelX sought for AEMO to consider broader measures to enhance the mechanism, including:

- Streamlining the baseline development process rather than requiring onerous consultation.
- Addressing barriers to aggregation by removing the DNSP endorsement process for aggregation of WDR resources. It considers the DNSP endorsement process is not required for retailer demand response aggregation, adds costs and does not have system security benefits.

- Reducing reliance on "excessively strict" accuracy criteria by considering measurement at aggregate level, rather than individual National Metering Identifier (NMI) level, as is done in Reliability and Emergency Reserve Trader (RERT)/Interim Reliability Reserves (IRR), and WA capacity markets; reducing frequency of testing; allowing for site threshold exceptions; or changing the metric.

EnelX provided supporting analysis showing the impact of higher accuracy thresholds (30% and 40%) on eligibility rates for its sample across a range of baseline methodology options being considered as part of this consultation process. It also highlighted the approach taken by other jurisdictions (noting there are limits to comparability), of which only two others principally rely on accuracy thresholds, including:

- PJM, which utilises the same 20% accuracy threshold for eligibility as the NEM, also at site-level, but which provides for a more extensive range of baseline options (including weather sensitive adjustments) in addition to allowing creation of bespoke baselines and testing accuracy only upon enrolment.
- South Korea's KPX, which utilises a 30% accuracy threshold and tests accuracy every two years (compared with twice-yearly in the NEM).

Shell Energy's view was that the WDR Mechanism has fallen short of expectations, in part due to the limited baseline methodologies available.

2.2.2 The role and benefits of WDR in the market

EnelX considers that AEMO is turning too frequently to out-of-market mechanisms like RERT rather than investing in increasing the volume of lower cost, visible and dispatchable in-market demand response via the WDR Mechanism. It noted that there are benefits to enhancing the volume of in-market demand response such as much lower capex costs relative to supply-side capacity, reduced requirement for new grid infrastructure, provision of grid services and substitution of emissions-intensive generation.

JEC considered that "AEMO actively seeks to promote RERT and seeks to make it easier for industry to participate" while similar efforts have not been made for the WDR Mechanism, and that this is not consistent with promoting the long-term interests of consumers.

JEC also considered that the Draft Report failed to recognise the value of WDR participation for emissions reduction and that AEMO should explicitly consider this as a market benefit in its assessment to properly reflect the National Electricity Objectives[3].

Shell Energy, EnelX and JEC all rejected the premise that "two-sided market" reforms would provide an alternative to the WDR Mechanism. They argued that the WDR Mechanism is instead a complement to reforms such as *Integrating price-responsive resources* and *Unlocking CER[4] benefits through flexible trading*, being the only mechanism that provides "strong incentives for new demand response capacity to enter the market outside of specific flexible assets such as behind the meter BESS[5] or physically definable flexible assets" (EnelX).

[3] https://www.aemc.gov.au/regulation/neo

[4] Consumer energy resources

[5] Battery Energy Storage System

Shell Energy and JEC both cautioned against assessing the value of the WDR Mechanism based on the first few years of operation, given the limited baseline methodologies available. JEC submitted that "the onus is on AEMO to scale up the mechanism to a point where market benefits match and exceed the costs to operate."

VIOTAS considered that the AEMC's pending WDR Review has created significant uncertainty in the mechanism, given the investment required to offer WDR, "including software development, staff training, marketing, and registration fees".

Finally, EnelX noted the potential role of WDR in government schemes such as the Capacity Investment Scheme and the NSW Peak Demand Reduction Scheme. It considered that the mechanism needs to function more effectively to enable governments to realise the objectives of the schemes.

2.2.3 Enabling sites with solar PV

Three submissions recognised the challenges of baselining sites with solar PV and noted that more suitable methods are required as solar PV proliferates in the large customer sector. VIOTAS, JEC and EnelX raised the concept of separate/sub-metering and removal of solar PV from the net energy volume as an alternative option for these sites.

EnelX put forward an alternative baseline methodology that it considered to be more targeted at the challenges of solar PV sites. It utilises the same CAISO 10 of 10 calculation methodology which underpins existing baselines, with the following new settings:

- A shorter adjustment period of one hour (ending one hour before the baselined TI) instead of three hours (ending one hour before the baselined TI).
- A shifted 5pm to 9pm Eligibility and Compliance TI window rather than the existing 3pm to 8pm window.

This alternative will be consulted on further.

2.2.4 Gaming risks

Several submissions commented on the risks of gaming in the WDR Mechanism:

- VIOTAS and EnelX considered that large customers are unlikely and unwilling to allocate resources to attempt to inflate their baseline for a highly unpredictable outcome.
- JEC asserted that "the guardrails already in place adequately limit the potential for providers of demand response services to 'game the system'".

3 Final decisions

3.1 Approach to final decision

In response to the feedback received from submissions and targeted discussions with a range of industry stakeholders, AEMO has determined that in addition to decisions on EnelX's specific proposals:

- It is appropriate to trial additional cost-effective opportunities to broaden eligibility to a wider pool of suitable loads and enhance participation in the mechanism, including adjustments to the WDR Mechanism accuracy threshold. These measures need to strike the right balance between enhancing participation and ensuring the integrity of the mechanism and performance of sites when dispatched.
- Further consultation should be undertaken to pursue baselining options that more directly address the challenges for loads with solar PV, which make up an increasing proportion of loads that are otherwise suitable for participating in the WDR Mechanism.
- A staged approach should be taken to implementation to enable the benefits of lower complexity options to be realised earlier.

As such, this final decision includes the following elements:

1. Final decisions on EnelX's specific proposals.
2. A decision to change the accuracy threshold on a trial basis to support broader participation and better understand the risks and benefits of the change.
3. Topics for further consultation from industry, including an alternative baseline methodology option targeting solar PV sites and settings for the baseline accuracy metric trial.
4. Additional items for AEMO to review to improve the functioning of the WDR Mechanism.

3.2 New baseline methodology options

3.2.1 CAISO 10 of 10 baseline methodologies with a shorter lookback period

To better accommodate seasonally varying loads, AEMO will introduce two new CAISO 10 of 10 baseline methodology options with a shorter 20-day lookback period for eligibility and compliance, in an "All Days" option and a "Business Days Only" option. Each option utilises the same baseline methodology settings as the existing CAISO 10 of 10 frameworks for BM1 and BM2[6], but the *Required number of eligibility days* and *Required number of compliance days* will be 20 days instead of 50 days.

EnelX argued in its proposal that a 50-day lookback period captures the impacts of seasonal changes on load patterns (including over the shoulder season), making it challenging for seasonally varying loads to demonstrate eligibility and compliance and thereby restricting the pool of sites that would be otherwise eligible to participate.

[6] See https://aemo.com.au/-/media/files/initiatives/wdr/baseline-methodology-register.pdf?la=en

The shorter lookback period means the accuracy and bias scores would be based on a smaller sample of more recent data, which EnelX argues is a better indication of adherence to the baseline for loads with seasonal characteristics compared with incorporating data from further back.

AEMO's Draft Report and analysis agreed that that introducing a 20-day lookback period would better accommodate seasonal loads that are otherwise suitable for WDR Mechanism participation, by avoiding the impact of capturing shoulder season effects on baseline eligibility and compliance assessments. It found that while a 20-day lookback period delivers better baseline accuracy for some loads, it does not necessarily work better for all potential WDR loads due to different load characteristics. It concluded that, if introduced, a 20-day lookback period should be part of new baseline methodologies rather than being applied across all existing methodologies as suggested in EnelX's original proposal.

As outlined in section 2.1.1, submissions supported this conclusion.

3.2.2 High 5 of 10 baseline methodology option for weather-sensitive loads

EnelX's original proposal sought for AEMO to introduce a High 3 of 10 baseline methodology option to provide a better option for weather-sensitive loads. AEMO's conclusion in the Draft Report was that a High 3 of 10 methodology is unlikely to strike the right balance between better accommodating the characteristics of these loads and managing risks such as extreme outliers having excessive influence on the baseline. AEMO instead consulted on a range of High 5 of 10 methodology options which it considered to provide a better balance between these considerations (i.e. by utilising more data for calculating the baseline while still excluding some lower usage days to recognise the conditions under which dispatch events are more likely to occur).

With respect to this option, AEMO considers that:

- there is likely to be value in introducing a new baseline to better accommodate weather-sensitive loads and broaden the range of eligible loads in the mechanism;
- existing analysis demonstrates that currently available baseline methodologies are often not optimal for baselining weather-sensitive loads;
- there is robust evidence that a High 5 of 10 baseline methodology option performs well across a range of load types and is utilised extensively by international demand response programs such as New York Independent System Operator's (NYISO's)[7]; and
- alternative options for accommodating these load characteristics, such as specific weather-sensitive adjustments, would be more complex and costly to implement compared to retaining a metered average approach, with limited improvement in efficacy.

As described in section 2.1.3, stakeholder submissions were broadly supportive of introducing an option to better accommodate weather-sensitive loads, with some mixed feedback on the High 5 of 10 option.

AEMO's final decision is to implement High 5 of 10 baseline methodology options to accommodate weather-sensitive loads, in an All Days and Business Days only option. This will be part of a second stage of implementation given the higher complexity of this option.

[7] See, for example: NYISO SCR Baseline Study Analysis, NYISO Management Response to the NYISO's SCR Baseline Study Analysis and Report and IESO Hourly Demand Response Baseline Methodology Review.

As part of implementation, AEMO will need to work through the final settings for this option, including:

- Considering whether changes are required to enable the integration of this baseline methodology option with the existing eligibility and compliance framework.
- Processes for validating that loads to which the baseline is applied are suitable (e.g., their consumption systematically varies with temperature/weather factors). This may increase the amount of compliance management AEMO needs to undertake for the WDR Mechanism.

AEMO considers that a weather-sensitive baseline methodology option is new to the WDR Mechanism and its performance will need to be closely monitored to understand whether it is resulting in issues or additional risks.

3.2.3 Other proposed settings

Lower negative adjustment floor option

EnelX proposed that a baseline methodology option with a lower negative adjustment floor should be introduced to better accommodate loads with characteristics such as:

- Periodic drops in load associated with certain types of production schedules. For example, there are some types of facilities which have steep and infrequent load drops, or bimodal operation, as a result of their processing activities.
- Some solar PV sites.

AEMO's analysis found that although this setting can support certain loads to pass predictability of load assessments, it comes with downsides. For example, it worsens baseline accuracy for loads where the consumption earlier in the day is not well correlated to the level of load during the baselined periodic and it generally worsens bias outcomes (albeit in the direction of systematic under-estimation).

AEMO's will not proceed with an option that includes a very low negative adjustment floor at this stage as more consideration is required, noting AEMO is:

- consulting further on a baseline methodology that may be more suitable for solar PV loads.
- trialling a higher accuracy threshold which should support a broader range of loads to demonstrate sufficient predictability to participate.

End of Period Date selection

EnelX's proposal requested that the new baseline methodologies include the ability to select an 'end of the period' date from which AEMO's bi-annual baseline compliance testing is conducted.

EnelX proposed that rather than AEMO's Predictability of Load (PoL) Calculator using default end of period dates corresponding to the date the compliance assessments are run (typically around the end of May and end of November prior to peak dispatch seasons), compliance assessments should be conducted using data that better reflects the "two distinct dispatch seasons for WDR" and that WDR participants should have a choice about what this date should be.

AEMO's final decision is not to proceed with allowing Demand Response Service Providers (DRSPs) to have the ability to select the period for which compliance is measured. In combination with the proposed 20-day lookback

period, allowing open End of Period Date selection would enable DRSPs to be highly selective about when and how they demonstrate compliance.

3.3 Trialling an alternative accuracy metric

AEMO has received feedback through this consultation and more broadly, highlighting concerns about:

- slow uptake and limited participation in the WDR Mechanism to date and associated lack of benefits to consumers and the market;
- the restrictiveness of the WDR Mechanism's eligibility requirements relative to other domestic and international demand response programs; and
- new baseline methodology options alone not being sufficient to support efficient levels of additional participation.

In response to this feedback, AEMO has determined that it will trial a higher accuracy (relative root mean squared error – RRMSE) threshold of 30%, with the outcomes, including a decision whether to retain the higher threshold, to be assessed in alignment with the 2026 WDR Annual Report.

AEMO considers that trialling an alternative accuracy threshold will assist in:

- Establishing an evidence base to understand the risks and benefits of different accuracy thresholds for NEM participants, consumers and the market, including implications for participation rates and quality of dispatched responses. It will enable AEMO to better understand whether an appropriate balance has been struck between NMI eligibility and baseline predictability in the WDR Mechanism to inform future settings. AEMO considers that these effects are otherwise difficult to ascertain in absence of a trial, given lack of participation and operational experience to date.
- Supporting more participation in the WDR Mechanism across the range of available baseline methodology options and bringing WDR Mechanism eligibility requirements more into practical alignment with other demand response programs in Australia and internationally which have seen a much greater degree of participation.

Clause 3.10.2 of the National Electricity Rules (NER) states that AEMO must determine, publish and may amend the baseline methodology metrics. This must include assessment of both accuracy and freedom from bias. In determining the baseline methodology metrics, AEMO must have regard to:

- the need not to distort the operation of the market;
- the need to maximise the effectiveness of WDR at the least cost to end use consumers of electricity; and
- the level of accuracy achieved by the demand forecasts used by AEMO for pre-dispatch and forecasts of intermittent generation.

With respect to the second criterion, AEMO considers that trialling a higher accuracy threshold provides an opportunity to increase the amount of in-market, dispatchable demand response capacity in the NEM which can respond during conditions of tight supply-demand balance and provide a lower-emissions alternative to high-cost generation sources. To the extent that an adjusted accuracy metric supports additional high-quality participation in

the mechanism and achieves a better balance between NMI eligibility and baseline predictability, it should contribute positively to the benefits delivered to end use consumers. This will be considered in assessing the outcomes of the trial.

With respect to the first and third criteria:

- AEMO does not consider that there is a material risk of additional distortion in spot market operation associated with increasing the accuracy threshold as proposed but will consider this in its assessment as part of the trial. The accuracy metric functions to limit the potential under- or over-payment of WDR, rather than under- or over-dispatch of WDR. The dispatch conformance process and cap on the amount payable to the DRSP at the Maximum Responsive Component for each WDR Unit (WDRU) each serve to mitigate the risk of NMI baseline inaccuracies in dispatch. In addition, AEMO proposes to maintain the existing Bias threshold of plus/minus 4%, which will reduce the risk of participation by loads with baselines that systematically over- or under-estimate consumption, and therefore the risk of systematic over- or under-payment for demand response.
- AEMO maintains the view put forward during the development of the Baseline Eligibility and Compliance Metrics Policy[8] that demand forecast error rates for pre-dispatch and semi-scheduled generation are not directly comparable to the accuracy threshold for WDR eligibility and compliance. As previously noted, the error rates relevant for pre-dispatch demand forecasts are applied at an instantaneous, regional level, on a fixed MW basis, which is historically derived from percentage of demand. The error trigger threshold is fixed at 6MW for the conformance calculation for semi-scheduled generating units, which can be significantly lower or higher than 20%, depending on the unit's size. For the WDR Mechanism, the accuracy metric is applied at a NMI level and is calculated using the RRMSE statistic (which is not the same as a simple % error statistic), as measured over a select number of TIs over the past 20-50 days (depending on baseline methodology).

To be effective, the setting of baseline methodology metrics must achieve an appropriate balance between enabling an efficient volume of capacity to participate and ensuring that baselines are sufficiently predictable to avoid risk of systematic over- or under- payment for delivered demand response in the market. Given stakeholder feedback that the level of participation in the mechanism is materially below expectations and failing to maximise benefits for consumers, and that restrictive eligibility requirements are inhibiting the ability of a wider range of loads to participate[9], AEMO considers that trialling a higher accuracy threshold is justified and may be maintained to the extent that it does not cause a decline in dispatch performance and other assessment criteria.

AEMO will consult further on the assessment criteria and other trial settings in a separate consultation paper – see next section.

[8] https://aemo.com.au/initiatives/trials-and-initiatives/past-trials-and-initiatives/wholesale-demand-response-mechanism/wdr-key-documents-and-links

[9] See also: https://nexaadvisory.com.au/web/wp-content/uploads/2024/02/Nexa-Advisory-Report-Accelerating-CI-demand-response-in-NSW.pdf, https://arena.gov.au/assets/2023/07/demand-flexibility-portfolio-retrospective-analysis-report.pdf, https://australiainstitute.org.au/wp-content/uploads/2024/04/P1278-Buildings-as-batteries-2024-update-Web.pdf, https://ieefa.org/sites/default/files/2023-10/Growing the sharing energy economy_Oct23_2.pdf, https://arena.gov.au/assets/2023/03/smart-energy-hubs-stage-1-report-regulatory-reform.pdf

3.4 Topics for further consultation

AEMO will publish an additional paper for further consultation on the following matters.

An alternative CAISO 10 of 10 baseline methodology option with adjustments to better accommodate solar PV sites

As noted in section 2.2.3, several submissions highlighted the challenges with accommodating solar PV sites in the WDR Mechanism, suggesting that the proposed adjustments in EnelX's initial proposal may not be sufficient to respond effectively to the characteristics of these sites.

Three submissions raised separately metering solar PV and deducting the effect from the measured load as an alternative to deal with the volatility created by solar PV. This is a broader policy matter that will not be resolved as part of this consultation.

EnelX put forward an alternative solar PV baseline as part of its submission. It utilises the same CAISO 10 of 10 calculation methodology which underpins existing baselines, with the following new settings:

- A 5pm to 9pm Eligibility and Compliance TI Window instead of the existing 3pm to 8pm window.
- A shorter adjustment period of one hour, instead of three hours, ending one hour before the baselined TI.

AEMO considers this may represent a more effective approach to accommodating the characteristics of solar PV sites than lowering the negative day-of adjustment floor and will seek stakeholder feedback on the risks and benefits of this alternative baseline methodology option.

Settings for baseline methodology accuracy threshold trial

As described in section 3.3, AEMO will consult further on the settings for a trial of a higher baseline methodology accuracy threshold. This includes duration, assessment criteria and transition arrangements.

3.5 Additional items for review

In addition to the matters in this consultation, AEMO has received feedback that:

- The DNSP endorsement process disincentivises aggregation and does not function as intended. Some stakeholder feedback has suggested that DNSP endorsement is not required for retailer-led demand response aggregation and it therefore creates an additional barrier for participation in the WDR Mechanism.
- The baseline methodology proposal and assessment process is onerous and should be streamlined to respond more effectively to new baseline requests.

As such, AEMO will review:

1. The DNSP endorsement process, including consulting with DNSPs and other stakeholders on the process.
2. The baseline methodology proposal and assessment process to determine whether it remains fit for purpose or if adjustments are required.

4 Summary of final decisions

AEMO's final decisions are as follows:

1. **Introduce the following new baseline methodology options**:
    a. New CAISO[10] 10 of 10 baseline methodology options with a shorter 20-day lookback period for eligibility and compliance to better accommodate seasonally varying loads. This will be implemented in All Days and Business Days Only options.
    b. New High 5 of 10 baseline methodology options to better accommodate weather-sensitive loads. Given the higher complexity of introducing this option, implementation will be part of a second stage. AEMO will need to work through final settings for this methodology, including integration with the existing eligibility and compliance framework and processes to verify that it is only applied to loads for which it is suitable. AEMO considers it will be important to review the performance of this baseline and make adjustments if risks or issues arise.
2. **Trial an alternative baseline methodology accuracy metric**. AEMO will trial a higher accuracy threshold of 30% for eligibility and compliance as an additional measure to address stakeholder concerns around the restrictiveness of the WDR Mechanism's eligibility requirements. AEMO will review the outcomes of the trial against defined assessment criteria and determine whether to retain the higher threshold, likely in alignment with the 2026 WDR Annual Report. AEMO considers that this adjustment is a cost-effective opportunity to establish an evidence base around the risks and benefits for NEM participants, consumers and the market, and to support broader participation across existing baseline methodologies. The WDR Mechanism needs to achieve an appropriate balance between enabling efficient levels of participation and ensuring the integrity of the mechanism.
3. **Consult further on the following topics (please see separate Further Consultation Paper)**:
    a. **An additional CAISO 10 of 10 baseline methodology option with adjustments to better accommodate solar PV sites**. This includes changes to the Eligibility/Compliance Trading Intervals (TI) Window and a reduction in the duration of the adjustment window. AEMO considers this to be a more targeted approach to accommodating the characteristics of solar PV sites than other proposed settings (such as a lower negative adjustment floor) and will seek stakeholder feedback on the risks and benefits of this alternative baseline methodology option.
    b. **Settings for trialling the alternative baseline methodology accuracy threshold** described above, including assessment criteria, duration, and transition arrangements.
4. **Additional items for review on broader WDR Mechanism settings:**
    a. The Distribution Network Service Provider (DNSP) endorsement process.
    b. The baseline methodology proposal and assessment process.

[10] California Independent System Operator

5 Implementation

AEMO will take a staged approach to implementation to enable some benefits to be realised sooner and reduce costs. AEMO's indicative implementation approach and timeframes are:

- First stage: Implement lower complexity measures including approved variations of 10 of 10 baseline methodologies and higher accuracy threshold trial.
- Second stage: Implement High 5 of 10 baseline methodology option.

As noted in the Draft Report, estimated cost of implementing these changes in AEMO's systems is expected to be approximately $550,000 (±40%). This estimate includes system changes (development, environments and testing for retail and portfolio management system changes) and business costs (including testing of new baselines, training on new baselines, consulting on and updating procedures, PoL tool changes, and updating internal processes).

AEMO will publish a notice informing stakeholders of indicative effective dates for baseline methodology changes once these have been confirmed as part of AEMO's broader prioritisation and implementation process.

As part of implementation, AEMO will need to update a range of documents, including the Baseline Methodology Register and the Baseline Eligibility Compliance and Metrics Policy.

AEMO's review of additional items, including the DNSP endorsement process and the baseline methodology proposal process, will commence in early 2025 following conclusion of the further consultation process.

AEMO will publish a Decision Notice following the conclusion of the further consultation process.

6 Next steps

AEMO will proceed with planning implementation of the final decisions in this report and updating relevant procedures. Further feedback is sought on matters in the accompanying Further Consultation Paper.

Milestone	Date
Initial assessment	Thursday 4 July 2024 (complete)
Draft Decision communicated to proponent	Thursday 1 August 2024 (complete)
Publish Draft Report & consultation commences	Thursday 26 September 2024 (complete)
Submissions due	Thursday 24 October 2024 (complete)
Publication of Final Report & Decision (this document)	Wednesday 4 December 2024 (delayed from original date of 21 November 2024)
Publication of Further Consultation Paper	*Wednesday 4 December 2024*
Submissions to Further Consultation Paper due	*Thursday 30 January 2025*
Publication of AEMO's response to Further Consultation Paper	*Thursday 27 February 2025*

Abbreviations

Term	Definition
CAISO	California Independent System Operator
DNSP	Distribution Network Service Provider
DRSP	Demand Response Service Provider
IRR	Interim Reliability Reserves
NEM	National Electricity Market
NER	National Electricity Rules
NMI	National Metering Identifier
NYISO	New York Independent System Operator
PoL	Predictability of Load
RERT	Reliability and Emergency Reserve Trader
RRMSE	Relative Root Mean Squared Error
TI	Trading interval
WDR	Wholesale demand response
WDRU	Wholesale Demand Response Unit