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WDR Team
AEMO

Submitted by email: WDR@aemo.com.au

8 April 2021

Dear WDR Team

**RE: Baseline eligibility compliance and metrics policy – Draft determination**

Thank you for the opportunity to provide feedback on the draft baseline eligibility compliance and metrics policy.

Enel X operates Australia's largest virtual power plant.[1] We work with commercial and industrial energy users to develop demand-side flexibility and offer it into the NEM's energy and ancillary services markets, the RERT mechanism, and to network businesses.

This submission provides Enel X's views on matters raised in the draft determination and specific aspects of the policy. The numbering used refers to sections of the draft determination. The key points are:

- We thank AEMO for the changes and clarifications it has made in response to our feedback on the issues paper.
- We remain concerned about the proposed 20 per cent RRMSE threshold because it will render many loads ineligible. 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 proposed 20 per cent cap on day-of adjustments will *decrease* baseline accuracy and *increase* baseline bias, and will therefore limit the number of WDR-suited loads that will be eligible to participate at market start. If AEMO is not open to increasing or removing the adjustment cap, it must balance this out by increasing the RRMSE and ARE thresholds.
- Eligibility and compliance testing intervals must be expressed in local time.
- We recommend that dispatch days be added into the policy alongside the other example eligibility/compliance excluded days.

If you have any questions or would like to discuss this submission further, please do not hesitate to contact me.

Regards

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[1] Bloomberg NEF, December 2019.

**Section 4.1: 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:

- **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.
- **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.
- **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.

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.

**Other markets use more flexible approaches**

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.

Japan

In Japan's "negawatt trading" and "1' reserve" markets (the most comparable to the WDRM), a 20 per cent RRMSE threshold is used as part of a three-step process to determine a suitable baseline methodology.

- Step 1 begins with the standard baseline methodology. If the RRMSE calculation gives a result <20%, then that methodology can be used.
- If the result is >20%, Step 2 involves a RRMSE calculation using an alternative baseline methodology. If the RRMSE calculation gives a result <20%, then that methodology can be used.
- If not, in Step 3 the DR aggregator is asked to negotiate an agreeable baseline methodology with the customer's retailer. As above, if the RRMSE calculation gives a result <20%, then that methodology can be used.

If none of the above steps are successful, the load cannot participate. However, as the steps above indicate, 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

PJM also has a 20 per cent RRMSE threshold but there are several differences to note.

First, it has a range of approved baseline methodologies for its demand response programs.[2] It will conduct a baseline accuracy test for a load by applying the default methodology to historical meter data. If the default baseline methodology passes the accuracy test, it must be used. If it does not, then the participant must adopt whichever baseline methodology passes the test and has the highest accuracy. If none of the approved methodologies pass the test for that load, then there is a process to gain approval for a new methodology that passes the test. However, this is a much shorter process than what AEMO's proposed process – maximum 30-50 calendar days as opposed to AEMO's proposed maximum 110 business days.

Second, PJM uses 1-hour meter data to conduct the RRMSE calculation, whereas AEMO proposes to use 5-minute data. Enel X has run its own analysis on sample customer loads and has found that their RRMSE scores are lower when 1-hourly data is used compared to 5-minute data. Thus the RRMSE threshold in PJM is not directly comparable to what AEMO is proposing.

Finally, PJM has shown itself to take a very flexible and customer-focused approach to setting a baseline methodology for loads that don't fit the normal expectations of C&I load, for example loads with a regular set of working days that don't line up with standard business days.

[2] See section 10.4.2 of PJM manual 11, p143.

**Section 4.3: Bias threshold**

We 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.

**Section 4.3: Future changes to baseline metrics**

We 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.

**Section 4.4: 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:

- provide less DR, either by reducing their MRC or limiting the amount of WDR they offer to the market, or
- 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.

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.

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.

**Section 4.5: 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.

**Section 4.6: 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.

| **Comments on the draft policy** |
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| *Clause 4.3: Frequency of compliance testing*<br><br>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).<br><br>*Clauses 4.7.2.2 and 4.7.2.3*<br><br>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. |