

Agenda Item 9: Potential Manifest Error – Loss Factor Adjustment of the Ancillary Service Quantities in the Forecast BMO at the Price Caps

Meeting 2020_06_16

1. Background

AEMO has submitted the attached paper titled ‘Potential Manifest Error – Loss Factor Adjustment of the Ancillary Service Quantities in the Forecast BMO at the Price Caps’ for discussion by the Market Advisory Committee (**MAC**).

2. Discussion

This paper was submitted late, so the MAC is asked whether it has had sufficient time to consider this matter and whether it would prefer to discuss this matter at the MAC meeting on 16 June 2020 or defer discussion to the MAC meeting on 28 July 2020.

If the MAC agrees to discuss this paper at its meeting on 16 June 2020, then the following points need to be discussed:

- (1) Is the issue identified by AEMO a manifest error?
- (2) What options are there to address this issue, including:
 - (a) the three options identified by AEMO:
 - (i) via a Rule Change Proposal to delete clause 7A.2.4(c);
 - (ii) via the Energy Transformation Strategy, in which case AEMO will continue to be non-compliant with the Market Rules in the interim;
 - (iii) via a system change by AEMO to make its systems compliant with the existing Market Rules; or
 - (b) any other Rule Change Proposals?
- (3) Of the options that are identified, what option(s) do the MAC prefer?
- (4) If a Rule Change Proposal is to be pursued:
 - (a) what urgency rating does the MAC recommend;¹
 - (b) should the proposal be progressed using the Fast Track Rule Change Process;² and
 - (c) who should be responsible for developing the Rule Change Proposal?

Attachments

- (1) Potential Manifest Error – Loss Factor Adjustment of the Ancillary Service Quantities in the Forecast BMO at the Price Caps

Notes

¹ The urgency ratings from the Framework for Rule Change Proposal Prioritisation and Scheduling are:

Urgency	Description	Resourcing Implications
1	<p>Essential</p> <p>The Proposal:</p> <ul style="list-style-type: none"> • is a legal necessity; • addresses unacceptable outcomes for the Wholesale Electricity Market or the gas market; or • addresses a serious threat to: <ul style="list-style-type: none"> ○ power system security and reliability; or ○ security, reliability or availability of the supply of natural gas in the State. 	Do not delay – acquire additional resources, and request an increase to the ERA budget from Treasury if necessary.
2	<p>High</p> <p>The Proposal is compelling and is:</p> <ul style="list-style-type: none"> • likely to have a large net benefit; and/or • necessary to avoid serious perverse market outcomes. 	Do not delay – acquire additional resources if available, subject to overall ERA budget limitations.
3	<p>Medium</p> <p>The net benefit of the Proposal:</p> <ul style="list-style-type: none"> • may be large but needs more analysis to determine; or • is material but not large enough to warrant a High rating. 	Delay up to 3 months if budgeted resources are unavailable.
4	<p>Low</p> <p>The Proposal has minor net benefit (e.g. reduced administration costs).</p>	Delay up to 6 months if budgeted resources are unavailable.
5	<p>Housekeeping</p> <p>The Proposal has negligible market benefit (e.g. it improves the readability of the Market Rules or GSI Rules).</p>	Delay up to 12 months if budgeted resources are unavailable.

² Clause 2.5.9 specifies the criteria for when a Rule Change Proposal can be progressed under the Fast Track Rule Change Process, as follows:

The Rule Change Panel may subject a Rule Change Proposal to the Fast Track Rule Change Process if, in its opinion, the Rule Change Proposal:

- (a) is of a minor or procedural nature; or
- (b) is required correct a manifest error; or
- (c) is urgently required and is essential for the safe, effective and reliable operation of the market or the SWIS.



Potential Manifest Error – Loss Factor Adjustment of Ancillary Service Quantities in the Forecast BMO at the Price Caps

1. ISSUE SUMMARY

AEMO understands the Balancing Market design was intended to ensure that:

- A Facility in the Forecast BMO can be dispatched at any price at or within the maximum and minimum Price Caps; and
- Ancillary Service providers are given priority at the maximum and minimum Price Caps ahead of energy providers¹.

AEMO's IT systems are currently implemented in line with this intended design. AEMO has recently identified that the WEM Rules do not support this understanding and that AEMO's IT systems are potentially non-compliant with the WEM Rules.

The specific issue arises because the WEM Rules require the Price Caps to be applied twice – once when Market Participants submit their offers (pre-loss adjustment as per clause 7A.2.4(c) of the WEM Rules), and again when AEMO determines the Forecast BMO (post-loss-adjustment as per clause 7A.3.2(a) of the WEM Rules).

Market Participants with Facilities that have a Loss Factor greater than 1 cannot make a Balancing Submission that ensures their Balancing Price Quantity Pair is in the Forecast BMO at the Price Caps and if that Facility is providing Ancillary Services, it will not be given priority ahead of energy providers. AEMO considers this issue may produce a scenario where the Forecast BMO requires Facilities providing Ancillary Services to be dispatched down prior to Facilities providing energy only. Without intervention by AEMO, this scenario would put the SWIS into a High-Risk State due to a shortfall of Ancillary Services. AEMO considers this to be a manifestly incorrect outcome that may compromise the technical operation of the SWIS.

If AEMO's understanding is correct, a Fast Track Rule Change could be pursued to address the manifestly incorrect outcome. AEMO wishes to discuss this with the Market Advisory Committee.

2. BACKGROUND

The WEM Rules require the following:

1. A Balancing Submission must have Balancing Price-Quantity Pair prices within the Price Caps (clause 7A.2.4(c)).
2. A Balancing Price-Quantity Pair is defined as a non-Loss Factor Adjusted Price for all Facilities (except the Balancing Portfolio).
3. When determining the Forecast BMO for a Trading Interval, AEMO is required to convert the prices in Balancing Price-Quantity Pairs contained in Balancing Submissions for that Trading Interval into Loss Factor Adjusted Prices, for all Balancing Facilities except the Balancing Portfolio (clause 7A.3.2(a)).
4. The definition of Loss Factor Adjusted Price requires AEMO to adjust Loss Factor Adjusted Prices outside of the Price Caps to the relevant Price Cap.

AEMO's IT systems do not currently apply the loss factor adjustment required under clause 7A.3.2(a) for Balancing Price-Quantity Pairs submitted at the minimum or maximum prices.

¹ For example, refer to [Balancing Market Trial Specification](#) (page 7) that states priority will be afforded to LFAS and other Ancillary Services ahead of energy providers.

AEMO has estimated² the impact of the issue on the Balancing Price of the present arrangements. Since 2012, the annual estimated impact for maximum price events has ranged from \$31,398 (2019) to \$457,906 (2015) and the estimated impact for minimum price events is -\$97,459 (occurring in 2019).

This potential non-compliance was recently identified during testing for the Reduction of Prudential Exposure project. The issue was not identified in previous software certification assurance processes or AEMO's annual audits. This issue will be further investigated and reported to the ERA as per all potential non-compliances with the WEM Rules.

3. CONSEQUENCES OF WEM RULES

The application of the WEM Rules requires the Price Cap limit to be applied when

1. Market Participants submit their offers (pre-loss adjustment as in step 1 above), and
2. AEMO determines the Forecast BMO (post-loss-adjustment as in step 3)³.

AEMO notes that this issue has impacts on Procedure Change Proposal AEPC_2020_01 to implement revisions to the Balancing Merit Order tie-break methodology. AEMO has put AEPC_2020_01 on hold until this matter is resolved.

3.1. Impacts to Market Participants

A consequence of the current WEM Rules is that a Market Participant with a loss factor greater than 1 cannot ensure its Facilities are included at the Price Caps in the Forecast BMO. These may impact a Market Participants ability to effectively manage their Facilities participation in the Balancing Market.

This issue does not apply to Synergy in respect of the Balancing Portfolio as Balancing Price Quantity Pairs for the Balancing Portfolio are not subject to loss factor adjustment required under clause 7A.3.2(a). As a result, Synergy is able to ensure their Balancing Portfolio Balancing Price Quantity Pairs are included at the Price Caps in the Forecast BMO where some independent power producers cannot.

3.2. Impacts to Ancillary Service

If a Facility providing Ancillary Services is not given priority in the BMO, there is a risk that the Facility will be dispatched down or decommitted during the dispatch process. AEMO's dispatch engine automatically issues Dispatch Instructions based on the BMO which in this case may require a Facility providing Ancillary Services to reduce its generation (or even operate at a level below its minimum generation which would require it to decommit).

If AEMO is unable to manually intervene in time, such a Dispatch Instruction would result in a shortfall of Ancillary Services and the SWIS would then enter a High Risk State (WEM Rule 3.4.1). WEM Rule 3.3.2 requires that AEMO must "ensure no actions are taken that in its opinion would be reasonably likely to lead to a High Risk Operating State."

The Forecast BMO as specified in the WEM Rules has the potential to cause a scenario where the WEM enters a High Risk State due to a shortfall of Ancillary Services. AEMO considers that this is a manifestly incorrect outcome under the WEM Rules.

AEMO considers this to be a manifestly incorrect outcome that may compromise the technical operation of the SWIS.

4. OPTIONS

AEMO is required to ensure that it's systems and processes remain compliant with the WEM Rules and takes this obligation very seriously. Based on that, the application of Price Caps

² During Trading Intervals with incorrect loss factor adjustment at the maximum price, the issue results in the Balancing Price being overstated. During Trading Intervals with incorrect loss factor adjustment at the minimum price, the Balancing Price is understated. The actual impact for each Market Participant will be different due to energy traded through the STEM and bilaterally – only Market Participants exposed to the Balancing Price would be impacted. This analysis assume the worst case where all energy is traded at the Balancing Price.

³ For the NEM, facilities are restricted to offering between the price floor multiplied by the relevant loss factor and price cap multiplied by the relevant loss factor (NEM Rule clauses 3.8.6(c) and (e)). Prices are then loss-factor adjusted to the Regional Reference Node, and if they would exceed the price cap or price floor, they are limited to this value (NEM Rule clause 3.8.6(h)(3)). As such, it the same issue does not occur in the NEM, as the NEM Rules and systems require that the maximum a facility can offer accounts for the effect of its loss-factors.

applied twice is the underlying issue, AEMO has completed a preliminary assessment of several options to address this

Option	Relevant considerations
<p>1. Rule Change Proposal to apply the Price Caps once (rather than twice) in the WEM Rules</p> <p>AEMO suggested recommended option</p>	<ul style="list-style-type: none"> ○ AEMO values compliance with the rules and considers that efforts should be made to ensure a compliant outcome. ○ There are several possible changes⁴ to the WEM Rules that could address this issue. For example, AEMO suggest that the WEM Rules could be amended as follows on the basis that this would: <ul style="list-style-type: none"> ○ correct the double application of the Price Caps, and allow any Market Participant to ensure its Facilities can be at any price within the maximum and minimum Price Caps in the Forecast BMO; ○ addresses the manifestly incorrect outcomes in relation to Ancillary Services; and ○ is low cost with short implementation time: <p>Remove the double application of the Price Caps by amending clause 7A.2.4(c) to remove requirement for a Balancing Submission to have prices within the Price Caps but retain clause 7A.3.2(a) and definition of Loss Factor Adjusted Price which requires AEMO to adjust Loss Factor Adjusted Prices outside of the Price Caps to the relevant Price Cap.:</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>7A.2.4 A Balancing Submission must: ... (c) have Balancing Price-Quantity Pair prices within the Price Caps;</p> </div> ○ AEMO considers that the issue qualifies for the Fast Track Rule Change Process on the basis that it produces a manifestly incorrect outcome in the power system. The use of Loss Factor Adjusted Prices for the Price Caps when determining the Forecast BMO does not give Ancillary Service providers, merit-order priority. The issue may require AEMO intervention to ensure that Power System Security is maintained. AEMO considers that this was not the intended Balancing Market design outcome. ○ Market Advisory Committee views
<p>2. Address non-compliance through WEM Reform</p>	<ul style="list-style-type: none"> ○ Issue will remain until WEM Reform commencement in October 2022, after which it will no longer exist as an issue. AEMO considers that a non-compliance with the WEM Rules should be addressed as soon as practicable and therefore, does not consider this a viable option.
<p>3. AEMO changes IT systems to comply with present WEM Rule requirement</p>	<ul style="list-style-type: none"> ○ AEMO considers that this option: <ul style="list-style-type: none"> ○ Will not correct the double application of the Price Caps, allow any Market Participant to ensure its Facilities can be at any price within the maximum and minimum Price Caps in the Forecast BMO; ○ Will not addresses the manifestly incorrect outcomes in relation to Ancillary Services. As a result AEMO will have to manually intervene at the Price Caps if following the Forecast BMO will result in a High Risk State. Specifically, if an Ancillary Service provider will be dispatched to a point where the system will end up in a shortfall of Ancillary Services. As such, AEMO will need to consider taking other actions to reduce the system security risk (e.g. developing alarms for controllers to manually intervene to prevent dispatch off of Ancillary Service providers; or automating this) which will take AEMO resource effort. ○ Preliminary technical investigation indicates that changes in affected systems will be considerable and would be the same resources required to work on rule changes and WEM reform. ○ This change would not address what AEMO considers a manifestly incorrect outcomes in the market. AEMO has not undertaken detailed analysis but manual intervention to avoid a High Risk State by keeping Facilities providing Ancillary Services online at the Price Caps will have a market impact, including constrained on and off payments..

⁴ For example align the WEM Rules with the NEM Rules to include a loss-factor adjustment in the bidding provisions under clause 7A.2.4(c) of the WEM Rules.

5. NEXT STEPS

AEMO is cognisant of the broader program of works in the WEM and the resource demand required to deliver these activities, such as the Energy Transformation Strategy and other Rule Change. These activities which will deliver significant benefits for Market Participants and WA consumers.

Based on this, AEMO believes Option 1 is the most pragmatic solution because:

- It will most quickly and effectively address the potential manifest error while maintaining system security;
- It will only require minor changes to AEMO's IT systems and processes⁵; and
- AEMO expects there will be no changes or minor changes required to Market Participants' systems and processes (to be discussed).

As part of assessing the options, AEMO is seeking views from the Market Advisory Committee on:

- AEMO's assessment that this issue produces a manifestly incorrect outcome in the WEM; and
- AEMO's recommendation that a change to the WEM Rules should be progressed as outlined in Option 1 as soon as practicable.

If agreed, AEMO is keen to discuss the most efficient mechanism to progress the rule change should Option 1 be preferred including as a Fast Track Rule Change under 2.6 of the WEM Rules.

⁵ System changes required will be restricted to the WEMS and will include correcting the loss-factor adjustment issue for balancing Price-Quantity Pairs at the Price Caps and removing the validation on Balancing Submissions described on clause 7A.2.4.