

**Final Rule Change Report:
Amending the Minimum STEM Price definition and
determination (RC_2019_05)**

Standard Rule Change Process

31 July 2020

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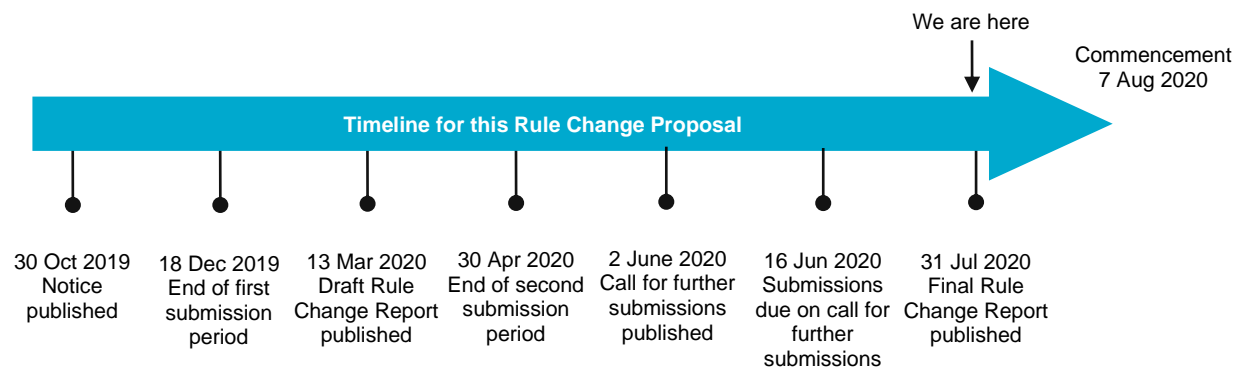
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1. Rule Change Proposal, Process and Timeline

On 25 October 2019, Synergy submitted a Rule Change Proposal titled “Amending the Minimum STEM Price definition and determination (RC_2019_05)”.

The Minimum STEM Price represents the price floor for the Short Term Energy Market (**STEM**) and the Balancing Market. The current Market Rules fix the Minimum STEM Price at $-\$1,000/\text{MWh}$. This Rule Change Proposal seeks to make the Minimum STEM Price subject to an annual review in line with the relevant price ceilings (the Maximum STEM Price and Alternative Maximum STEM Price) and to change the Minimum STEM Price to $-\$200/\text{MWh}$ until the first review of the Minimum STEM Price is complete.

This proposal is being processed using the Standard Rule Change Process described in section 2.7 of the Market Rules. The key dates for progressing this Rule Change Proposal are:



This Final Rule Change Report is drafted on the basis that the reader has read all the related documents, including the Rule Change Proposal, the first period submissions, the Draft Rule Change Report, the second period submissions, the call for further submissions and the further period submissions. All documents related to this Rule Change Proposal can be found on the Rule Change Panel’s website at [Rule Change: RC_2019_05 – Economic Regulation Authority Western Australia](#).

2. The Rule Change Panel’s Decision

The Rule Change Panel’s final decision is to accept the Rule Change Proposal in a modified form. The Amending Rules are specified in section 8 of this report.

2.1 Reasons for the Decision

The Rule Change Panel has made its final decision on the basis that the Amending Rules will:

- ensure the Minimum STEM Price is fit for purpose under changing market conditions;
- ensure that the appropriate entity has authority for reviewing and setting the Minimum STEM Price;
- limit the costs for reviewing and amending the Minimum STEM Price; and
- allow the Market Rules to better achieve Market Objective (a) and ensure that they are consistent with the remaining Market Objectives.

Additional detail presenting the analysis behind the Rule Change Panel’s decision is provided in section 7 of this report.

2.2 Commencement

The Amending Rules will commence at **8:00 AM on 7 August 2020**.

3. Proposed Amendments

3.1 The Rule Change Proposal

Synergy’s Rule Change Proposal seeks to:

- amend the definition of the Minimum STEM Price from $-\$1,000/\text{MWh}$ to a value that is determined “based on AEMO’s estimate of the highest price that would induce all generators absent of non-market-related externalities to decommit”;¹
- expand the annual review and approval process for the values of the Maximum STEM Price and Alternative Maximum STEM Price to include review and approval of the value of the Minimum STEM Price;² and
- set the Minimum STEM Price to $-\$200/\text{MWh}$ until a new value is determined and approved through the expanded annual review process.

Synergy contends that the displacement of scheduled generation by renewable generation will soon render the Minimum STEM Price unfit for purpose and that leaving it unchanged will:

- result in excessive and unacceptable financial losses for Market Generators that have generating plant in service at times of low scheduled load and/or that are obliged to have generation plant in service for no other reason than to provide Ancillary Services; and
- deliver a perverse retirement and augmentation pricing signal.

Synergy considers that the excessive losses may have a profound impact on short-term and long-term decision making in the market, adding considerable and unnecessary cost to the system.

Synergy considers that the Minimum STEM Price does not provide the most efficient outcome for the Wholesale Electricity Market (**WEM**), because:

- in being fixed (at $-\$1,000/\text{MWh}$), it is not responsive to changes in technology, costs and market conditions; and
- in being arbitrary, it does not reflect a level that explicitly relates to the cost of supply.

Synergy suggests introducing an interim Minimum STEM Price of $-\$200/\text{MWh}$ as soon as possible to avoid adverse outcomes prior to the implementation of the proposed review process.

Full details of the Rule Change Proposal are available on the Rule Change Panel’s website.

¹ Synergy defines ‘non-market-related externalities’ as considerations associated with using generation plant for purposes other than providing energy to the electricity market (e.g. steam revenue derived by a cogeneration facility).

² As a result, the methodology for setting the Minimum STEM Price would be included in the Economic Regulation Authority’s (**ERA**) five-yearly review of the methodology for setting the Benchmark Reserve Capacity Price and the Energy Price Limits.

3.2 The Rule Change Panel's Initial Assessment of the Proposal

The Rule Change Panel has decided to progress this Rule Change Proposal on the basis that stakeholders should be given an opportunity to consider the Rule Change Proposal and provide submissions through the rule change process.

4. Consultation

Although the Rule Change Panel has summarised the submissions received in the first, second and further submission periods and the views expressed by the MAC in accordance with clause 2.7.7 of the Market Rules, the Rule Change Panel has reviewed this information in its entirety and taken into account each matter raised by stakeholders and the MAC in making its decision on this Rule Change Proposal.

4.1 Consultation before the Publication of the Draft Rule Change Report

A summary of the consultation undertaken by the Rule Change Panel in respect of this Rule Change Proposal before the publication of the Draft Rule Change Report is provided in section 5 of the Draft Rule Change Report. The summary covers:

- the discussion of the proposal at the 13 November 2019 Market Advisory Committee (**MAC**) meeting³ including the following aspects of the proposal:
 - whether the Minimum STEM Price is inefficient;
 - the annual review and appropriate level of the Minimum STEM Price;
 - market power;
 - the principles to determine the Minimum STEM Price;
 - non-balancing active Facilities; and
- the submissions received during the first submission period and the Rule Change Panel's response to those submissions.

4.2 Submissions Received during the Second Submission Period

The second submission period for this Rule Change Proposal was held between 16 May and 28 June 2019. The Rule Change Panel received submissions from AEMO, Alinta Energy (**Alinta**), Bluewaters Power (**Bluewaters**), the Economic Regulation Authority (**ERA**), NewGen Power Kwinana (**NewGen**) and Synergy.

The Rule Change Panel had sought stakeholder views on the following three specific issues in the Draft Rule Change Report:

1. the proposed mechanism to allow AEMO to determine that the Minimum STEM Price is appropriate and does not need to be newly determined in a given year, as discussed in section 6.1.3 of the Draft Rule Change Report;

³ The Rule Change Panel convened a special MAC meeting to discuss this Rule Change Proposal because it had not previously been discussed with the MAC and the next scheduled MAC meeting would have been too close to the end of the first submission period to inform Rule Participants' development of submissions.

2. the proposal to set the Minimum STEM Price to be the price that is lower than 90% of the prices determined under the scenario outcomes, as discussed in section 6.1.3 of the Draft Rule Change Report;⁴ and
3. the methodology and guiding principles that AEMO must follow when determining the Minimum STEM Price, as discussed in section 6.1.3 of the Draft Rule Change Report.

The Rule Change Panel also asked stakeholders to specifically comment on the costs and benefits of reviewing the Minimum STEM Price. In particular, the Rule Change Panel sought stakeholders' views on:

4. whether the cost for the reviews, as estimated by AEMO (see section 6.6.1 of the Draft Rule Change Report) justify the benefits of including the Minimum STEM Price in the annual review of the Energy Price Limits; and
5. the level of costs stakeholders consider would justify the benefits of annually reviewing the Minimum STEM Price.

Feedback on Two-Step Review Process (Question 1)

AEMO, Alinta and Synergy supported the proposed approach for the review of the Minimum STEM Price, where a new Minimum STEM Price only gets determined if the current Minimum STEM Price is found to be inappropriate. AEMO and Alinta also supported the proposed factors that AEMO must consider when determining if the Minimum STEM Price is appropriate.

Feedback on Setting the Minimum STEM Price at the 90th Percentile (Question 2)

Alinta Energy noted its understanding that the proposed methodology requires a threshold to be applied so that the determined Minimum STEM Price is not extremely negative due to one unique scenario. Without this threshold, it may expose Market Participants to a price that could threaten the financial viability of a prudent Market Participant, which is against the objective of the Minimum STEM Price.

The ERA and Synergy noted that the choice of the 90th percentile for this threshold is arbitrary.

The ERA expressed its concern that the choice of the 90% threshold could result in a Minimum STEM Price that is too high and therefore may not allow for the differentiation of Facilities. The ERA proposed instead to apply the 10% Conditional Cost at Risk (CCaR).⁵

The Rule Change Panel has clarified with the ERA that the 10% CCaR represents the average of the 10% highest costs from the scenarios, which would deliver a similar result to the 90% threshold if the scenarios result in a unimodal distribution, but would be more robust against the risk of setting the Minimum STEM Price too high if the distribution was bimodal or multimodal. The ERA also clarified that the choice of percentage for the CCaR was arbitrary and should be considered carefully.

⁴ The Rule Change Panel proposes that AEMO must model the price at which the Facility with the highest cycling cost per MW minimum generation for credible scenarios.

⁵ CCaR is also known as conditional value at risk (CVaR). Further information about this risk measurement can be found at:

- <https://au.mathworks.com/discovery/conditional-value-at-risk.html>
- <https://www.styleadvisor.com/resources/statfacts/conditional-value-risk>
- https://en.wikipedia.org/wiki/Expected_shortfall

Synergy suggested to set the Minimum STEM Price slightly below the price at which there are no more meaningful quantities offered in the Balancing Market (i.e. slightly below the lowest price offered above the Minimum STEM Price) and therefore negligible efficiency gains from a lower floor price. Synergy considered that such a floor price allows a functioning market to operate when the Balancing Market settles above the Minimum STEM Price, but, when the Balancing Market settles at the floor price, the market inefficiencies and market flaws associated with a price clearing that is unrelated to the costs of producing the relevant electricity are not compounded by an artificially low floor price.

Feedback on the Methodology for Determining the Minimum STEM Price (Question 3)

AEMO considered that the proposed methodology provided too much uncertainty about application of the described method, leading potentially to high effort and cost to determine the Minimum STEM Price. AEMO suggested codifying the methodology either in the Market Rules or a Market Procedure. AEMO also provided some examples of matters that should be further codified, including the requirement for guidelines on how to obtain information needed for the determination of the Minimum STEM Price from Market Participants.

Bluewaters and NewGen supported the proposal to limit the calculation of Minimum STEM Price based on credible low system load scenarios and considered that there should be some scrutiny of what is considered in cycling costs.

The ERA considered that the objective for the setting of the Minimum STEM Price in proposed clause 6.20.8(b) could distort market clearing prices and create economic inefficiency because:

- This could lead to a scenario where Generators cannot offer their supply at the price reflecting their cycling costs. This creates a financial risk for generators with high cycling costs and increases wholesale electricity prices above the level that would be realised with no price floor.
- This could deter the entry of storage technologies that would otherwise take advantage of substantially negative prices.

Synergy considered that the notion that the Minimum STEM Price should be low enough to enable differentiation of decommitment costs between generators appears to be based upon a highly theoretical and purist economic approach that does not properly take into account the actual and factual operation of the market, and thus will lead to outcomes that are, in fact, contrary to the Wholesale Market Objectives. Synergy outlined several considerations about the current market design to support this view.

Synergy supported the proposed methodology for determining the Minimum STEM Price in general. Synergy encouraged AEMO to work closely with Market Participants during the determination to ensure its assumptions are accurate.

Synergy suggested that any Facilities that must offer at the Minimum STEM Price under the Market Rules (e.g. to fulfil Ancillary Services obligations) should be excluded from the analysis to determine the Minimum STEM Price, because Synergy considers that there is no benefit in determining decommitment costs for a unit that must be constrained on during periods of low demand. Synergy also reiterated that 'non-market externalities' should be excluded from the analysis.

Feedback on the Cost and Benefits (Questions 4 and 5)

Alinta considered that the benefits from determining a revised Minimum STEM Price do not justify the proposed costs.

Alinta noted that the introduction of a security constrained economic dispatch energy market and a new essential services market was planned to commence by 1 October 2022 and that this may result in Facilities being dispatched very differently to the current market. Alinta considered that this means that the scenarios that will be used to determine a new Minimum STEM Price may no longer be applicable, thus effectively allowing only 12 months to reap the benefits of an updated Minimum STEM Price (assuming that the earliest effective date for a new Minimum STEM Price would be in the second half of 2021).

Alinta also considered that the Balancing Market may not clear at the Minimum STEM Price again for a significant period of time, as recent Balancing Market outcomes suggest that Market Participants have changed their behaviour since the Minimum STEM Price events in October 2019.

Synergy considered that, because it anticipated the frequency of the Balancing Market settling at the Minimum STEM Price and the transference of wealth at the tax-payer expense to increase, the preliminary cost of up to \$300,000 for the initial review set by AEMO is justifiable. Synergy also noted that if the proposed mechanism for the annual review of the Minimum STEM Price is adopted, this would result in downward pressure on subsequent costs on reviews.⁶

Other Feedback Unrelated to the Questions from the Draft Rule Change Report

The ERA acknowledged that Synergy's obligation to provide ancillary services could put it in a position that it is unable to cover its efficient costs, and that this is not a desirable outcome. However, the ERA considered that amending the Minimum STEM Price is not the most appropriate means to address the risk that Synergy faces from being required to bidding at the price floor to provide Ancillary Services. Further, raising the Minimum STEM Price may have unintended and adverse consequences for the market.

Synergy reiterated its view that the current Minimum STEM Price is too low and therefore negatively affects market efficiency and urged the Rule Change Panel to re-examine its decision to not introduce an interim Minimum STEM Price.

Synergy considered that the design of the Balancing Market makes it near impossible for Market Participants to respond efficiently to changing load and essentially forces some Market Participants to offer at the Minimum STEM Price, regardless of the value at which it is set.

Synergy considered that an inefficiently low Minimum STEM Price will only result in magnifying the financial penalty to Market Participants who seek to comply with the Market Rules, whether this be for avoiding infeasible dispatch or providing Ancillary Services. Synergy expressed its concern that if the Minimum STEM Price was set too low and the market regularly cleared at this price, this is likely to unnecessarily expedite the exit of base load generation which may have unintended consequences for system reliability.

Synergy considered that Market Generators are not able to account for the risk of the Balancing Market clearing at the Minimum STEM Price in their LFAS Submissions because

⁶ The Rule Change Panel notes that the costs that Synergy quoted in its second period submission do not reflect the cost estimates provided by AEMO and the ERA – see section 7.2.2 of this report for more information on these cost estimates.

the ERA has stated that, at least in relation to the Short Run Marginal Cost (**SRMC**) market power mitigation obligations in the Balancing Market, Market Participants are not allowed to include a risk margin as part of their costs.

Synergy considered that the LFAS Market is fundamentally broken because participants (other than Synergy) can, and do, withhold small amounts of capacity from the LFAS Market forcing Synergy as the default provider to recover large costs over a very small marginal tranche, therefore forcing the LFAS price up unnecessarily. If this includes the need to recover a –\$1,000/MWh Balancing Price cost associated with generation by Facilities only online for providing LFAS, the LFAS Price could reach astronomically high values to be “cost reflective”. This outcome would be highly inefficient and would only exist because of flaws in the market design.

Synergy noted that the volatility of the consumption of its residential customers is difficult to hedge because this volatility is caused by the increase in solar penetration, which has led to the aggregated demand of these customers becoming negative (de facto generating instead of consuming). This, combined with the requirement to provide LFAS, means that Synergy has negative demand, and a concurrent obligation to supply, which creates exposure to the Minimum STEM Price due to no fault of its own.

Submitters’ Assessment of the Proposed Changes Against the Wholesale Market Objectives

The assessment by submitting parties as to whether the Rule Change Proposal would better achieve the Wholesale Market Objectives is summarised in Table 4.1.

Table 4.1: Submitters’ Comments on the Wholesale Market Objectives (Second Submission Period)

Submitter	Wholesale Market Objective Assessment
AEMO	<p>AEMO considers that under the current drafting, the Minimum STEM Price determination process could be costly and would therefore not be consistent with Wholesale Market Objective (a):</p> <p><i>to promote the economic efficient, safe and reliable production and supply of electricity related services in the South West interconnected system.</i></p>
Alinta	<p>No assessment provided.</p>
Bluewaters and NewGen	<p>Bluewaters and NewGen consider that the proposed amendments will better facilitate Wholesale Market Objective (d).⁷</p> <p><i>to minimise the long-term cost of electricity supplied to customers from the SWIS</i></p> <p>The provision of a Minimum STEM Price that accurately reflects the cycling costs associated with the de-commitment of generators will reduce the price risk on energy during low demand periods. The reduction in perceived risk should minimise the long-term cost of electricity supplied to customers through lower risk premiums offered in Balancing Submissions.</p>

⁷ Bluewaters and NewGen cited this as Wholesale Market Objective (c), but the Rule Change Panel has corrected this for the sake of Table 4.1 as Wholesale Market Objective (d).

Submitter	Wholesale Market Objective Assessment
ERA	The ERA did not provide a specific assessment against the Wholesale Market Objectives.
Synergy	<p>Although the Rule Change Panel's proposal to implement a two-tiered approach to the periodic review process for the Minimum STEM Price is economically efficient (Market Objective (a)), benefits to the market will be rendered obsolete if the determination of Minimum STEM Price results in a figure at, near, or lower than, $-\\$1,000/\text{MWh}$.</p> <p>If any inefficiently low floor price is set, this result would exacerbate the adverse impacts associated with existing market design flaws and result in outcomes which are inconsistent with the intent of Market Objectives (a), (c) and (d) which promote market efficiency, avoiding discrimination against particular energy options and minimising the long-term supply of electricity.</p> <p>Setting the Minimum STEM Price higher than $-\\$1,000/\text{MWh}$ until these market design issues are addressed would better serve Market Objective (a) in facilitating economic efficiency and allow the tiebreaking mechanism to decide which Facility turns off. This would avoid issues associated with the floor price being set artificially and inefficiently low for reasons unrelated to differentiating decommitment costs of generating Facilities.</p>

Copies of all submissions received during the second submission period are available on the Rule Change Panel's website.

4.3 The Rule Change Panel's Response to Submissions Received during the Second Submission Period

The Rule Change Panel's response to each of the specific issues raised in the second submission period is presented in Appendix A of this report. A more general discussion of the analysis undertaken by the Rule Change Panel on this Rule Change Proposal since the publication of the Draft Rule Change Report, which addresses the main issues raised in submissions and the Rule Change Panel's response to these issues, is available in section 7.2 of this report.

4.4 Call for Further Submissions

On 2 June 2020, the Rule Change Panel published a call for further submissions. The Rule Change Panel issued this call for further submissions because it considered that some of the feedback provided in the second submission period required further consultation.

In the call for further submissions, the Rule Change Panel sought stakeholder feedback on the following questions:

1. Should the responsibility for annually reviewing and setting the Minimum STEM Price be given to the ERA rather than AEMO?
2. Should the Minimum STEM Price be set at:
 - the price that represents the 10% CCaR, the 5% CCaR or some other percentage, as explained in section 5 of this report;

- the price that is lower than 90% of the prices determined, lower than 95% or some other percentage; or
 - any other specific price or value that is based on the decommitment costs considered in the approach proposed in the Draft Rule Change Report?
3. Do stakeholders have any concerns with:
 - the introduction of a head of power for AEMO (or the ERA if it is given the responsibility for the annual Minimum STEM Price review) to obtain the information it would need to determine the decommitment costs; and/or
 - the proposed process for obtaining this information?
 4. Do stakeholders have any concerns about the introduction of the proposed guiding principles for setting the credible scenarios of low demand?

The call for further submissions is available on the Rule Change Panel's website.

4.5 Submissions Received during the Further Submission Period

The further submission period was held between 2 June and 16 June 2020. The Rule Change Panel received submissions from AEMO, Alinta, Perth Energy, Sustainable Energy Now (**SEN**) and Synergy.

Feedback on which Party should Undertake Minimum STEM Price Review (Question 1)

Alinta supported giving the responsibility for annually reviewing and approving the Minimum STEM Price to the ERA rather than AEMO based on the cost estimates indicated in the call for further submissions. Alinta noted that the change in responsibility will align the Minimum STEM Price review with the processes in the National Energy Market, where the Reliability Panel (a specialist body within the Australian Energy Market Commission) is responsible for assessing whether the floor price is appropriate and determining a new floor price, if required.

Synergy expressed concerns regarding the difference in the cost estimates provided by the ERA and AEMO for undertaking the review of the Minimum STEM Price and questioned whether the same rigour would be applied given the variance. Synergy considered that an independent consultant should be engaged for the initial review of the Minimum STEM Price, irrespective of which party is given responsibility for the review.

Synergy supported the segregation of duties (AEMO to undertake the review and the ERA to approve the outcome) and noted that the approach should be consistent across all Energy Price Limits.

Feedback on how to set the Value for the Minimum STEM Price (Question 2)

Alinta noted that the Minimum STEM Price should be set at a level that does not interfere with generators being able to differentiate themselves according to the value they place on being dispatched by bidding at negative prices during periods of excess generation.

Alinta noted that it does not have a strong preference on which method is selected (percentile of scenario outcomes or CCaR). Alinta considered that the percentage that should be initially used should be very conservative to ensure that all generators will be able to differentiate themselves and that the ERA should assess this percentage in each review to

determine whether the current percentage should be revised for the next review. Based on this principle, Alinta Energy recommended the Minimum STEM Price to be set at either:

- the price that represents the 2% CCar; or
- the price that is lower than 98% of the prices determined; or
- a price that all generators will be able to differentiate themselves based on their decommitment costs.

Synergy recommended that none of the proposed percentages should be used for setting the Minimum STEM Price and reaffirmed its view that setting the Minimum STEM Price inefficiently low will potentially create unnecessary risk for generators and unnecessary costs for the market, especially if the market is cleared at the floor price with increasing regularity.

Synergy noted that in determining the Minimum STEM Price, it is critical to demonstrate that the additional risk placed on generators will be less costly to the market compared to reliance on AEMO to either turn down a generator or administer the tie-breaker mechanism.

Feedback on the Head of Power to Request Information for the Determination of the Minimum STEM Price (Question 3)

Alinta expressed its view that confidential and commercially sensitive information (such as decommit and recommit costs of a Facility, including start-related fuel and variable operating and maintenance costs) should only be used for the purpose for which it was provided. Alinta expressed its preference to not include a head of power to require participants to provide information on cycling costs. Instead Alinta suggested that the process for determining average cycling costs mirror the Australian Energy Regulator's (AER) Reliability standard and settings review, whereby a consultant undertakes modelling in its market floor price assessment. This approach is also in-line with the approach used for the other Energy Price Limits in the WEM.

Alinta recommended that, if its suggestion to require a consultant to undertake the modelling was not accepted, Market Participants should be able to self-assess which decommitment and recommitment costs are material and relevant to be provided to AEMO or the ERA. Alinta considered that, when Market Participants are calculating decommitment costs which may include start-related fuel and variable operating and maintenance costs, the operating costs may be magnitudes lower than start-related fuel costs, so providing additional information when it serves no benefit would be very inefficient.

Synergy expressed its understanding for the need of the head of power clause but requested to extend the timeframe for Market Participant to provide the requested information to 10 Business Days (from five Business Days) to allow participants to compile the required information.

Other Feedback

Synergy reiterated its view that 'non-market externalities', which may involve must run provisions associated with steam generation, should not be considered in setting the Minimum STEM Price.

4.6 The Rule Change Panel's Response to Submissions Received During the Further Submission Period

The Rule Change Panel's response to each of the issues raised in the further submission period is presented in Appendix B of this report. A more general discussion of the Rule

Change Panel's analysis on this Rule Change Proposal since the publication of the Draft Rule Change Report is available in section 7.2 of this report.

4.7 Public Forums and Workshops

The Rule Change Panel did not hold a public forum or workshop for this Rule Change Proposal.

5. The Rule Change Panel's Draft Assessment

The Rule Change Panel's draft assessment against clauses 2.4.2 and 2.4.3 of the Market Rules and analysis of the Rule Change Proposal is provided in section 6 of the Draft Rule Change Report, available on the Rule Change Panel's website.

6. The Rule Change Panel's Proposed Decision as set out in the Draft Rule Change Report

The Rule Change Panel's proposed decision in the Draft Rule Change Report was to accept the Rule Change Proposal in a modified form, as set out in section 7 of the Draft Rule Change Report.

The reasons for the Rule Change Panel's proposed decision are set out in section 2.1 of the Draft Rule Change Report.

7. The Rule Change Panel's Final Assessment

7.1 Assessment Criteria

In preparing its Final Rule Change Report, the Rule Change Panel must assess the Rule Change Proposal in light of clauses 2.4.2 and 2.4.3 of the Market Rules.

Clause 2.4.2 of the Market Rules states that the Rule Change Panel "*must not make Amending Rules unless it is satisfied that the Market Rules, as proposed to be amended or replaced, are consistent with the Wholesale Market Objectives*". Additionally, clause 2.4.3 of the Market Rules states that, when deciding whether to make Amending Rules, the Rule Change Panel must have regard to:

- any applicable statement of policy principles the Minister has issued to the Rule Change Panel under clause 2.5.2 of the Market Rules;
- the practicality and cost of implementing the proposal;
- the views expressed in submissions and by the MAC; and
- any technical studies that the Rule Change Panel considers necessary to assist in assessing the Rule Change Proposal.

In making its final decision, the Rule Change Panel has had regard to each of the matters identified in clauses 2.4.2 and 2.4.3 of the Market Rules as follows:

- the Rule Change Panel's assessment of the Rule Change Proposal against the Wholesale Market Objectives is available in section 7.5 of this report;
- the Rule Change Panel notes that there has not been any applicable statement of policy principles from the Minister in respect of this Rule Change Proposal;

- the Rule Change Panel's assessment of the practicality and cost of implementing the Rule Change Proposal is available in section 7.7 of this report;
- a summary of the views expressed in submissions and by the MAC is available in section 4 and Appendix A of the Draft Rule Change Report and section 4 and Appendices A and B of this report. The Rule Change Panel's response to these views is available in section 7.2 and Appendices A and B of this report, and Appendix A of the Draft Rule Change Report; and
- the Rule Change Panel does not believe a technical study in respect of this Rule Change Proposal is required and therefore has not commissioned one.

The Rule Change Panel's assessment is presented in the following sections.

7.2 Assessment of the Proposed Changes

The Rule Change Panel's assessment of the following aspects of the Rule Change Proposal has not changed from its draft decision:

- introducing an interim Minimum STEM Price (see section 6.1.4 of the Draft Rule Change Report); and
- introducing a Second Price Floor (Alternative Minimum STEM Price) (see section 6.1.5 of the Draft Ruel Change Report).

The Rule Change Panel has undertaken some additional assessment of the following aspects of the Rule Change Proposal as set out in this section 7.2:

- changing the definition of the Minimum STEM Price;
- including the Minimum STEM Price in AEMO's annual Energy Price Limit Review and the ERA's five-yearly Methodology Review; and
- defining the principles for determining the Minimum STEM Price.

7.2.1 Changing the definition of the Minimum STEM Price

The Rule Change Panel's assessment of this aspect of the Rule Change Proposal has not changed from its draft decision in section 6.1.1 of the Draft Rule Change Report, except for the amendment outlined below.

In section 6.1.1 of the Draft Rule Change Report, the Rule Change Panel took the view that:

- any quantities associated with the provision of LFAS by Synergy (even if Synergy has to provide all LFAS) would be hedged by Synergy's own consumption and Bilateral Contracts and are therefore not exposed to the Balancing Price; and
- most, if not all quantities associated with other Ancillary Services provided by Synergy would also be hedged by Synergy's own consumption and bilateral contracts and not exposed to the Balancing Price.

The Rule Change Panel acknowledges that Synergy may not be able to hedge all of the generation that it must provide to fulfil its obligations to provide Ancillary Services, including LFAS. However, the Market Rules allow AEMO to procure Ancillary Services from other Rule Participants to reduce costs to the market (see clauses 3.11.8 and 3.11.8A of the Market Rules) and the Rule Change Panel considers that, for Trading Intervals where Synergy's Bilateral Contracts and own consumption could be less than the generation it needs to provide Ancillary Services, it may be more efficient for AEMO to procure Ancillary Services from other Market Participants. The Rule Change Panel considers that any issues in the

Ancillary Services market should be addressed through another Rule Change Proposal rather than by distorting the Balancing Market by setting an inappropriate Minimum STEM Price. The Rule Change Panel also notes that Energy Policy WA is currently reviewing procurement of Ancillary Services as part of its Energy Transformation Strategy.

7.2.2 Including the Minimum STEM Price in AEMO's annual Energy Price Limit Review and the ERA's five-yearly Methodology Review

The current Market Rules set out an annual Energy Price Limits review process that requires:

- AEMO to review the Energy Price Limits (the Maximum STEM Price and Alternative Maximum STEM Price) and to propose revised values to the ERA; and
- the ERA to review whether AEMO has followed the respective methodology for determining the Energy Price Limit values and to approve or reject any revised values.

The Market Rules also require the ERA to conduct five-yearly reviews of the methodology for setting the Benchmark Reserve Capacity Price and the Energy Price Limits no later than the fifth anniversary of the completion of the preceding review.

Synergy proposed to include the Minimum STEM Price in the annual review of the Energy Price Limits. Synergy proposed that, in line with the Maximum STEM Price, the appropriateness of the Minimum STEM Price should be reviewed annually to ensure it is performing its function appropriately in the light of changing technologies, Market Rules and cost structures.

Synergy proposed that the methodology would then be reviewed every five years, along with the other Energy Price Limits.

In its first period submission, AEMO suggested that it should be discussed how often the Minimum STEM Price should be reviewed.

As outlined in section 7.2.1 of this report and section 6.1.1 of the Draft Rule Change Report, the Rule Change Panel agrees with Synergy's proposal to introduce an annual review for the Minimum STEM Price.

However, the determination of a new Minimum STEM Price will likely involve extensive and potentially costly modelling and the outcome would not likely vary significantly on an annual basis. Therefore, the Rule Change Panel considers that it may not be efficient to determine a new Minimum STEM Price on an annual basis.

The Rule Change Panel proposed in the Draft Rule Change Report to require an annual review of the Minimum STEM Price using the following two-step process, similar to the Reliability Panel's review of the price floor in the National Electricity Market (**NEM**):

- Step (1): determine if the Minimum STEM Price is appropriate based on criteria set out in the Market Rules; and
- Step (2): if it is determined in step (1) that the Minimum STEM Price is inappropriate, then review the Minimum STEM Price (i.e. step (2) is not undertaken if the Minimum STEM Price is found appropriate at step (1)).

AEMO, Alinta, the ERA and Synergy supported this two-step approach in their second period submissions.

The Rule Change Panel considers that the Energy Price Limits are regulatory instruments and that it is best regulatory practice for the independent regulator (the ERA) to undertake the Energy Price Limits reviews, not the market operator (AEMO). The Rule Change Panel

considers that it may be appropriate to move the obligation and responsibility for reviewing the Energy Price Limits, from AEMO to the ERA. However, changing the responsibility for the review of the Maximum STEM Price and the Alternative Maximum STEM Price is outside the scope of this Rule Change Proposal.

The Rule Change Panel considers that a review of the Maximum and Alternative Maximum STEM Price is a separate process from a review of the Minimum STEM Price and that, based on AEMO's comments, there are no significant synergies between these reviews.

As noted in the call for further submissions, AEMO estimated that its costs to review the Minimum STEM Price would range from \$70,000 to \$300,000, and the ERA estimated that its costs would be around \$100,000 for each:

- annual review of the Minimum STEM Price, where AEMO proposes a revised value for the Minimum STEM Price; and
- five-yearly review of the methodology for setting the Minimum STEM Price.

The ERA Secretariat subsequently indicated that, if the ERA was tasked with the annual review of the Minimum STEM Price:

- the costs for step (1) – the reviews of whether the current Minimum STEM Price is appropriate – could be covered by the ERA's existing budget; and
- it would cost around \$120,000 per review of the Minimum STEM Price, where such a review is necessary.

For the reasons outlined above, the Rule Change Panel has made further changes to the Amending Rules to make the ERA responsible for the annual review of the Minimum STEM Price rather than AEMO.

Based on the Rule Change Panel's analysis, as outlined in section 7.2.1 of this report and section 6.1.1 of the Draft Rule Change Report, the Rule Change Panel considers that the current Minimum STEM is likely to be appropriate. However, the Rule Change Panel considers that the ERA should make the final determination on this matter. Therefore, the Rule Change Panel considers that the first annual review should commence as soon as practicable to provide clarity on this question and to address Synergy's concern that the current price is inappropriate. The Rule Change Panel considers that the timeframe to be considered for the first review should include the three Minimum STEM Price events in October 2019. The ERA has advised that it can commence the review by 1 February 2021. The Rule Change Panel made further changes to the Amending Rules to reflect these considerations for the first annual review of the Minimum STEM Price.

The Rule Change Panel understands that the Energy Transformation Taskforce (**Taskforce**) intends to review the controls for efficient market outcomes in the WEM (i.e. market power mitigation arrangements) as part of the Energy Transformation Strategy. The scope of the Taskforce's review is under development and further amendments to the Market Rules may be contemplated following completion of that work. As a result, the Rule Change Panel is of the view that it is appropriate to assign responsibility for reviewing the Minimum STEM Price to the ERA because the ERA can most efficiently undertake this responsibility, as indicated above, and that the Taskforce should holistically consider any further changes to the process to review Energy Price Limits via the Energy Transformation Strategy. The Rule Change Panel has not received any opposing advice from the Energy Transformation Taskforce.

The Rule Change Panel notes that the review of the Minimum STEM Price does not have to coincide with the review of the Maximum and Alternative Maximum STEM Price.

The Rule Change Panel supports Synergy's proposal to make the methodology to determine the Minimum STEM Price subject to the ERA's five-yearly methodology reviews.

7.2.3 Principles for determining the Minimum STEM Price

In its Rule Change Proposal, Synergy suggested that the determination of the Minimum STEM Price should consider the following factors:

- the cost to cycle, including start-related fuel and variable operating and maintenance costs for each generating unit;
- the minimum stable level of operation of each generating unit;
- the minimum time each generating unit must remain out of service once decommitted before recommitment is possible; and
- the expected rate of change of system demand during periods of minimum demand.

However, Synergy did not specify these factors in its proposed Amending Rules.

AEMO noted in its submission that the proposed amendments, as specified in the Rule Change Proposal, do not provide sufficient detail regarding how AEMO is to calculate the Minimum STEM Price and suggested that this will likely create challenges in proposing and approving the Minimum STEM Price. AEMO suggests that the proposed amendments need to provide a level of detail for the calculation similar to the Maximum STEM Price and Alternative Maximum STEM Price in clauses 6.20.3 and 6.20.7 of the Market Rules.

The Rule Change Panel notes that submissions generally supported specifying these factors in the Market Rules. The Rule Change Panel agrees with the factors that Synergy suggested should be considered in the determination of the Minimum STEM Price. The Rule Change Panel considers that the criteria for setting the Minimum STEM Price should be specified in enough detail to provide appropriate guidance to the ERA and that such specification should be included in the Market Rules to ensure the appropriate level of governance (i.e. so that any changes to these criteria are subject to the Rule Change Process).

Synergy in its proposal and Alinta and Perth Energy in their submissions supported the principles used by the Reliability Panel for determining the floor price in the NEM.

The Rule Change Panel has also considered the process and principles that the Reliability Panel uses to consider the floor price in the NEM.⁸

The Rule Change Panel generally concurs with the Reliability Panel's views on the rationale for the price floor in the NEM and the objectives and criteria for the Reliability Panel's reviews of the price floor, as expressed in its 'Final Report: Reliability standard and settings review 2018' (see Appendix B of the Draft Rule Change Report). The approach taken to setting the price floor in the NEM is consistent with Wholesale Market Objective (a).⁹

The Rule Change Panel considers that the criteria that the ERA is to use to set the Minimum STEM Price are to:

- (a) allow the market to clear above the Minimum STEM Price in most circumstances (i.e. allow Market Generators to differentiate themselves at times of excess generation by

⁸ The Rule Change Panel has summarised how wholesale electricity prices are regulated in Australia in Appendix B of the Draft Rule Change Report.

⁹ Wholesale Market Objective (a) is:

To promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the [SWIS].

bidding at negative prices according to the value that they place on being dispatched);
and

- (b) as long as criterion (a) is achieved, limit Market Participants' exposure to prices that could threaten the financial viability of a prudent Market Participant (i.e. limit the financial losses that a Market Generator can incur in a single Trading Interval).¹⁰

The Rule Change Panel has included these criteria in the Market Rules to provide guidance for the ERA when reviewing the Minimum STEM Price and when reviewing the methodology for setting the Minimum STEM Price.

In the proposed Amending Rules in the Draft Rule Change Report, criteria (a) and (b) were to be considered equally. However, as outlined in the call for further submissions, the Rule Change Panel considers that criterion (a) should be superior to criterion (b) because a Minimum STEM Price would distort the market if it were set so that it would not allow Facilities to differentiate themselves. Therefore, the Rule Change Panel made further changes to the Amending Rules to establish that criterion (a) is superior to criterion (b).

As outlined in section 7.2.1 and 7.2.2 of this report, and section 6.1.1 of the Draft Rule Change Report, the Rule Change Panel's decision is for the annual review of the Minimum STEM Price to be a two-step process undertaken by the ERA; with the first step for the ERA to determine if the Minimum STEM Price is appropriate and the second step for the ERA to determine the Minimum STEM Price if it concludes that the Minimum STEM Price is not appropriate.

The Rule Change Panel considers that the ERA should consider the following when determining whether the Minimum STEM Price is appropriate:

- (a) whether the Balancing Market has cleared at the Minimum STEM Price since the last review of the Minimum STEM Price because the Minimum STEM Price was too high;
- (b) whether AEMO has dispatched down any quantities that are in merit and are priced at the Minimum STEM Price because the Minimum STEM Price was too high;
- (c) whether there has been a change in the generation fleet since the last review of the Minimum STEM Price that is likely to result in:
- the current Minimum STEM Price being materially lower than necessary due to, including but not limited to, an upgrade or retirement of a Facility with high cycling costs;
 - the current Minimum STEM Price being too high due to, including but not limited to, the increase of cycling costs due to deterioration or aging of an existing plant; and
- (d) whether any Market Participant has provided a notice to the ERA requesting that the ERA review the Minimum STEM Price and providing reasons for why the Minimum STEM Price should be reviewed.

¹⁰ The proposed criteria for the Minimum STEM Price are generally consistent with Synergy's statement in its Rule Change Proposal that:

The Minimum STEM Price should, correspondingly, be calculated to be a negative number that is low enough (but no lower) than the price at which the generator with the greatest cost to decommit, or turn off, would be financially better off to incur the cost of shutting down its plant, rather than remaining in service and delivering at negative prices. In other words, it should represent the price just sufficient to induce all generators absent of non-market-related externalities to decommit.

However, as outlined in section 7.2.1 of this report, the Rule Change Panel has rejected the explicit exclusion of 'non-market externalities' from the criteria.

Since the proposed Amending Rules in the Draft Rule Change Report only included considerations (a), (c) and (d); the Rule Change Panel has made further changes to the Amending Rules to include consideration (b). The Rule Change Panel notes that the proposed Amending Rules in the Draft Rule Change Report did not require Market Participants to provide reasons when requesting that the ERA review the Minimum STEM Price. However, the Rule Change Panel considers that Market Participants should be required to provide reasons for why the ERA should review the Minimum STEM Price so that the ERA, and therefore Market Participants, can avoid incurring unnecessary costs from unnecessary reviews. The Rule Change Panel has changed the Amending Rules accordingly.

Where the ERA concludes a new Minimum STEM Price needs to be determined, the determination should aim to find the price at which all Facilities in the SWIS would be better off to decommit if that price was reached during one Trading Interval for most credible scenarios. Therefore, the Rule Change Panel considers that the Minimum STEM Price should be based on the cycling costs of the Facility with the highest cycling cost per MW.¹¹

The Rule Change Panel notes that:

- where a Facility has a minimum down time (i.e. a period where it must remain out of service after decommitting), any opportunity cost associated with the minimum down time must logically be part of the Facility's cycling costs; and
- the Facility with the highest cycling costs may differ depending on the opportunity costs, which are related to Balancing Prices.

Therefore, the Rule Change Panel considers that the determination of the highest cost to decommit per MW should be based on modelling of different Balancing Market scenarios.

The Rule Change Panel considers that the scenarios modelled should represent scenarios where the Minimum STEM Price is relevant (i.e. when Facilities are competing to stay committed during times of low system demand). The cycling costs of a Facility with a long minimum down time would be higher for scenarios with high system demand and subsequent high Balancing Prices. However, such scenarios are not relevant for the determination of the Minimum STEM Price because Facilities bidding at or near the Minimum STEM Price would be dispatched during such times.

The Rule Change Panel further considers that the Minimum STEM Price should reflect the Facility's cycling costs per MW if that price is reached for one Trading Interval. The Minimum STEM Price should not reflect the average cycling costs for a Facility over the Facility's minimum down time, because such a price in any single Trading Interval would not provide a signal for that Facility to decommit (i.e. a Facility would be better paying this price to generate for one Trading Interval than decommitting).

The Rule Change Panel considers that it would not be prudent to determine the Minimum STEM Price based on the highest cycling cost per MW of all scenarios modelled. Instead, the Minimum STEM Price should be based on the cycling cost that is higher than a set percentage of the scenario outcomes for the highest cycling costs.

¹¹ The Rule Change Panel considers that a Facility would usually incur its highest cycling cost if it has to decommit. However, the Rule Change Panel refers to cycling costs as this includes all possible scenarios of output variation.

The Rule Change Panel considers that the ERA should use the following methodology to determine a new Minimum STEM Price:

- (a) determine for low system demand scenarios that the ERA deems credible, the price at which the Facility with the highest cycling costs in the SWIS (in this scenario) would reasonably decommit if the Balancing Price clears at this price for a single Trading Interval over the timeframe of the Facility's minimum down time; and
- (b) set the Minimum STEM Price to be the price that is lower than 95% of the prices determined under (1).

In the Draft Rule Change Report, the Rule Change Panel proposed to set the percentage at 90% and requested stakeholder feedback on this value.

As noted by Alinta, the ERA and Synergy, the choice of percentage is arbitrary. However, the Rule Change Panel agrees with Alinta (from its further period submission) and the ERA (from its second period submission) that the value should be chosen conservatively because a Minimum STEM Price would distort the market if it were set so that it would prevent Facilities from differentiating themselves sufficiently in most circumstances. However, the Rule Change Panel considers that it would not be prudent to eliminate this risk completely. Therefore, the Rule Change Panel has made further changes to the Amending Rules to set the Minimum STEM Price lower than 95% of the scenario outcomes. The Rule Change Panel notes that the choice of the 5th percentile will be subject to the ERA's five-yearly review of the methodology for setting the Energy Price Limits.

In its second period submission the ERA proposed to set the Minimum STEM Price at the price that represents the 10% CCaR to account for the possibility of bi-modal or multi-modal scenario outcomes. However, the Rule Change Panel considers that, if the distribution turns out to be bi-modal or multi-modal, the Minimum STEM Price will only fail to reflect the outcomes in the negative tail of the distribution if these scenario outcomes represent less than 5% of all scenarios. The Rule Change Panel considers that it would not be prudent to eliminate the risk that the Facility with the highest cycling costs in these scenarios will incur a loss because it has to cycle at the Minimum STEM Price completely. Therefore, the Rule Change Panel has not adopted the CCaR for the determination of the Minimum STEM Price.

The proposed Amending Rules in the Draft Rule Change Report did not provide guidance on how to set the credible scenarios of low demand. The Rule Change Panel considers that the determination of the scenarios of low demand for the determination of the Minimum STEM Price, should be allowed to be based on historic scenarios. However, if historic scenarios are used, any changes in the SWIS that would likely have an effect on the determination of the Minimum STEM Price should be accounted for. Therefore, the Rule Change Panel made further changes to the Amending Rules to implement these principles.

The Rule Change Panel considers that, in undertaking the necessary modelling, the ERA must consider the factors that a Market Generator acting reasonably would consider in making a decommitment decision. These factors should include, but not be limited to the ERA's estimate of:

- (a) the cost to decommit and recommit within the timeframe of the Facility's minimum downtime, including start-related fuel and variable operating and maintenance costs for the Facility;
- (b) the minimum generation of the Facility;
- (c) the minimum down time of the Facility;

- (d) any expected losses or gains, opportunity costs and cost savings that result from the decommitment for the duration of the minimum down time of the Facility; and
- (e) any other matters that the ERA deems relevant.

The Rule Change Panel considers that the ERA should be able to request the information indicated in factor (a) from Market Participants if it considers that it requires this information. The proposed Amending Rules in the Draft Rule Change Report did not provide a head of power for the party reviewing the Minimum STEM Price (AEMO in the Draft Rule Change Report). Therefore, the Rule Change Panel has made further changes to the Amending Rules to introduce a head of power and process for the ERA to request the information that it would need to include factor (a) in its modelling.

The Rule Change Panel considers that the ERA should not have to make assumptions on the contractual arrangements that a Market Participant may have in place. The Rule Change Panel considers that the ERA should determine the Minimum STEM Price based upon the assumption that power stations operate on a standalone (unhedged) basis, unless the relevant Market Participant(s) provide evidence to the ERA's satisfaction of contractual arrangements that would change the Minimum STEM Price.

7.3 Additional Related Issues Identified by the Rule Change Panel

The Rule Change Panel's assessment regarding the treatment of non-balancing active Intermittent Generators has not changed from the assessment in section 6.2.1 of the Draft Rule Change Report.

The Rule Change Panel made the following administrative changes:

- Specify that AEMO's review of the Energy Price Limits is a review of both the Maximum STEM Price and the Alternative Maximum STEM Price to improve readability.
- Clarify that the Maximum STEM Price and the Alternative Maximum STEM Price apply for the Balancing Market.
- Correct several instances where the Market Rules refer to clauses when referencing a section of the Market Rules.
- Specify a cross reference in clause 6.20.11.
- Amend several clauses to align it with standard drafting conventions and improve readability.

7.4 Additional Changes to the Proposed Amending Rules

7.4.1 Additional Amendments following the First Period

Following the first submission period, the Rule Change Panel made some additional changes to the proposed Amending Rules. A summary of these changes is available in section 6.3 of the Draft Rule Change Report.

7.4.2 Additional Amendments following the Second and Further Submission Periods

The Rule Change Panel has made further changes to the proposed Amending Rules following the second and further submission periods. These changes are shown in Appendix C of this report.

7.5 Wholesale Market Objectives

7.5.1 Amending the Definition of the Minimum STEM Price and Including the Minimum STEM Price in the Annual Energy Price Limits Review

The Rule Change Panel considers that amending the definition of the Minimum STEM Price and introducing an annual review of the Minimum STEM Price:

- will promote economic efficiency by ensuring the Minimum STEM Price allows Market Generators to differentiate their plants based on the value of cycling, which will allow for efficient dispatch of available power plants at times of low system demand, promoting Wholesale Market Objective (a); and
- are consistent with the other Wholesale Market Objectives.

7.5.2 Setting an Interim Minimum STEM Price

The Rule Change Panel considers that setting the Minimum STEM Price to -\$200/MWh would not promote economic efficiency (Wholesale Market objective (a)) and would discourage competition (Wholesale Market objective (c)) for the reasons indicated in section 6.1.4 of the Draft Rule Change Report. The proposed interim floor price would not allow Market Generators to differentiate their plants based on the value of cycling, leaving the dispatch decision in times of low system demand to the tiebreak rule in the Market Procedure referred to under clause 7A.3.3 of the Market Rules.

The Rule Change Panel considers that setting an appropriate interim Minimum STEM Price would promote economic efficiency (Wholesale Market Objective (a)). However, as outlined in the Draft Rule Change Report, the appropriate Minimum STEM Price may be lower than -\$1,000/MWh and the Rule Change Panel would need to undertake modelling to determine this price, so setting a non-arbitrary interim Minimum STEM Price would unnecessarily delay the processing of this Rule Change Proposal.

7.6 Protected Provisions, Reviewable Decisions and Civil Penalties

This Rule Change Proposal does not amend any Protected Provisions, Reviewable Decisions, or civil penalty provisions; nor does the Rule Change Panel consider that any of the new clauses should be civil penalty provisions.

7.7 Practicality and Cost of Implementation

7.7.1 Cost

The ERA has provided the following cost estimate to implement the proposed changes, including the modifications made after the second and further submission period:

- the annual review of whether the Minimum STEM Price is appropriate (i.e. step (1) of the review process) can be accommodated with its current resources;
- approximately \$100,000 per review, where the ERA needs to determine a new Minimum STEM Price as part of the annual review (i.e. step (2) of the review process, when necessary); and

- an overall increase of 0.1 FTE per annum for the methodology review of setting the Minimum STEM Price, assuming a review every 5 years, plus consultancy costs of approximately \$100,000 per methodology review.

Bluewaters and NewGen stated in their first and second period submissions that they would incur negligible implementation costs.

Synergy stated in its second period submission that it could manage the additional work resulting from the introduction of a new periodic review process on the Minimum STEM Price as part of its business as usual processes.

The other submissions made no statements regarding implementation costs.

The Rule Change Panel's proposal to implement a two-step process to set the Minimum STEM Price will provide a means to defer the second step of the review in years when the Minimum STEM Price is unlikely to change, which should significantly reduce the costs to implement this Rule Change Proposal as supported by Alinta, AEMO, the ERA and Perth Energy.

7.7.2 Practicality

Bluewaters and NewGen stated in their first and second period submissions that their implementation time would be negligible.

Perth Energy stated in its further period submission that the proposed changes would increase the administrative burden on Perth Energy in relation to:

- resourcing required to consider the annual and five-yearly review of an additional administered price (or prices) as part of the Energy Price Limits review; and
- IT system and process changes associated with the need to (at least annually) change the Minimum STEM Price (or prices).

Perth Energy further noted that it would need three months' notice to update the necessary systems and processes to ensure it remained compliant with a revised Minimum STEM Price (or prices).

The Rule Change Panel notes that the period between the commencement of the Amending Rules of this Rule Change Proposal and the end of the ERA's first review of the Minimum STEM Price should be sufficient for Rule Participants to implement any process changes. The Rule Change Panel notes that the Amending Rules set a minimum time of five Business Days between the determination of a new Minimum STEM Price and its application. The Rule Change Panel considers that this should give Market Participant sufficient time to update their systems and processes to reflect any changes to the Minimum STEM Price. The Rule Change Panel notes that AEMO provides the option to use the variable MIN in a Balancing Submission where any Price-Quantity Pair bid at MIN will automatically be bid at the Minimum STEM Price no matter at which level it is set.

8. Amending Rules

The Rule Change Panel has decided to implement the following Amending Rules (~~deleted text~~, added text, clauses that are included for context but not amended):

...

1.35. Specific Transitional Provisions for the First Review of the Minimum STEM Price

1.35.1. Notwithstanding clause 6.20.13, the Economic Regulation Authority must commence the first review of the Minimum STEM Price under clause 6.20.13 by 1 February 2021.

1.35.2. Notwithstanding clause 6.20.14, for the first review of the Minimum STEM Price under clause 6.20.13(a), the time period for which the Economic Regulation Authority must consider the matters referred to in clause 6.20.14 is at least the period beginning on 1 October 2019 until the commencement of the first review.

...

2.26. Economic Regulation Authority Approval of Administered Prices

2.26.1. Where AEMO has proposed a revised value for the Benchmark Reserve Capacity Price in accordance with section 4.16 or a change in the value of one or ~~more~~ both of the Maximum STEM Price and the Alternative Maximum STEM Price Energy Price Limits in accordance with section 6.20, the Economic Regulation Authority must:

- (a) review the report provided by AEMO, including all submissions received by AEMO in preparation of the report;
- (b) ~~make a decision as to decide~~ whether ~~or not~~ to approve the revised value for the Benchmark Reserve Capacity Price or any value comprising the Energy Price Limits;
- (c) in making its decision, only consider:
 - i. whether the proposed revised value for the Benchmark Reserve Capacity Price or Energy Price Limit proposed by AEMO reasonably reflects the application of the method and guiding principles described in ~~clauses~~ sections 4.16 or 6.20 (as applicable);
 - ii. whether AEMO has carried out an adequate public consultation process; and
- (d) notify AEMO ~~as to~~ whether ~~or not~~ it has approved the revised or recommended value.

2.26.2. Where the Economic Regulation Authority rejects a revised Benchmark Reserve Capacity Price or the Energy Price Limits submitted by AEMO it must give reasons and may direct AEMO to carry out all or part of the review process under

section 4.16 or 6.20 (as applicable) again in accordance with any directions or recommendations of the Economic Regulation Authority.

...

6.20. Energy Price Limits

6.20.1. The Energy Price Limits are:

- (a) the Maximum STEM Price;
- (b) the Alternative Maximum STEM Price; and
- (c) the Minimum STEM Price.

6.20.2. The Maximum STEM Price is the value published on the Market Web Site and revised in accordance with clauses 6.20.6 and 6.20.11.

6.20.3. Subject to clause 6.20.11, the Alternative Maximum STEM Price is to equal:

- (a) from 8 AM on September 1, 2006, \$480/MWh; and
- (b) from 8 AM on the first day of each subsequent month the sum of:
 - i. \$440/MWh multiplied by the amount determined as follows:
 - 1. the average of the Singapore Gas Oil (0.5% sulphur) price, expressed in Australian dollars, for the three months ending immediately before the preceding month as published by the International Energy Agency in its monthly Oil Market Report, or the average of another suitable published price as determined by AEMO, divided by;
 - 2. the average of the Singapore Gas Oil (0.5% sulphur) price, expressed in Australian dollars, for May, June and July 2006 or, if a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, for the three months ending immediately before the month preceding the month in which the revised Alternative Maximum STEM Price takes effect, as published by the International Energy Agency in its monthly Oil Market Report, or the average of another suitable published price as determined by AEMO; and
 - ii from 8 AM on September 1, 2006, to 8 AM on 1 September, 2007, \$40/MWh, and for each subsequent 12-month period \$40/MWh multiplied by the CPI for the June quarter of the relevant 12-month period divided by CPI for the 2006 June quarter or, if a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, the June quarter of the year in which the revised Alternative Maximum STEM Price takes effect, where CPI is the weighted average of the Consumer Price Index All Groups value of the eight Australian State and Territory capital cities as determined by the Australian Bureau of Statistics;

rounded to the nearest whole dollar, where a half dollar is rounded up, with the exception that from the date and time that a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, the revised values supersede the values in 6.20.3(b)(i) and 6.20.3(b)(ii), and are to be the values used in calculating the Alternative Maximum STEM Price for each month subsequent to the month in which the revised Alternative Maximum STEM Price takes effect.

6.20.4. [Blank]

6.20.5. [Blank]

6.20.6. AEMO must annually review the appropriateness of the value of the Maximum STEM Price and Alternative Maximum STEM Price.

6.20.7. In conducting the review required by clause 6.20.6 AEMO:

- (a) may propose revised values for the following:
 - i. the Maximum STEM Price, where this is to be based on AEMO's estimate of the short run marginal cost of the highest cost generating works in the SWIS fuelled by natural gas and is to be calculated using the formula in paragraph (b); and
 - ii. the Alternative Maximum STEM Price, where this is to be based on AEMO's estimate of the short run marginal cost of the highest cost generating works in the SWIS fuelled by distillate and is to be calculated using the formula in paragraph (b);

(b) must calculate the Maximum STEM Price or Alternative Maximum STEM Price using the following formula:

$$(1 + \text{Risk Margin}) \times (\text{Variable O\&M} + (\text{Heat Rate} \times \text{Fuel Cost})) / \text{Loss Factor}$$

Where

- i. Risk Margin is a measure of uncertainty in the assessment of the mean short run average cost for a 40 MW open cycle gas turbine generating station, expressed as a fraction;
- ii. Variable O&M is the mean variable operating and maintenance cost for a 40 MW open cycle gas turbine generating station, expressed in \$/MWh, and includes, but is not limited to, start-up related costs;
- iii. Heat Rate is the mean heat rate at minimum capacity for a 40 MW open cycle gas turbine generating station, expressed in GJ/MWh;
- iv. Fuel Cost is the mean unit fixed and variable fuel cost for a 40 MW open cycle gas turbine generating station, expressed in \$/GJ; and

- v. Loss Factor is the marginal loss factor for a 40 MW open cycle gas turbine generating station relative to the Reference Node.

Where AEMO must determine appropriate values for the factors described in paragraphs (i) to (v) as applicable to the Maximum STEM Price and Alternative Maximum STEM Price.

6.20.8. [Blank]

6.20.9. In conducting the review required by clause 6.20.6 AEMO must prepare a draft report describing how it has arrived at a proposed revised value of an one or both of the Maximum STEM Price and Alternative Maximum STEM Price ~~Energy Price Limit~~. The draft report must also include details of how AEMO determined the appropriate values to apply for the factors described in clauses 6.20.7-(b)(i) to 6.20.7(b)(v). AEMO must publish the draft report on the Market Web Site and advertise the report in newspapers widely published in Western Australia and request submissions from all sectors of the Western Australia energy industry, including end-users, within six weeks of the date of publication.

6.20.9A. Prior to proposing a final revised value ~~to an Energy Price Limit for one or both of the Maximum STEM Price and Alternative Maximum STEM Price~~ in accordance with clause 6.20.10, AEMO may publish a request for further submissions on the Market Web Site. Where AEMO publishes a request for further submissions in accordance with this clause, it must request submissions from all sectors of the Western Australia energy industry, including end-users.

6.20.10. After considering the submissions on the draft report described in clause 6.20.9, and any submissions received under clause 6.20.9A, AEMO must propose a final revised value for ~~any proposed change to an Energy Price Limit~~ one or both of the Maximum STEM Price and Alternative Maximum STEM Price and submit those values and its final report, including any submissions received, to the Economic Regulation Authority for approval.

6.20.11. A proposed revised value for the Maximum STEM Price and the Alternative Maximum STEM Price ~~any Energy Price Limit~~ replaces the previous value after:

- (a) the Economic Regulation Authority has approved that value in accordance with clause 2.26.1; and
- (b) AEMO has posted a notice on the Market Web Site of the new value of the applicable Energy Price Limit,

with effect from the time specified in AEMO's notice.

6.20.12. The Minimum STEM Price is:

- (a) -\$1000/MWh until the first time the value of the Minimum STEM Price is revised by the Economic Regulation Authority and takes effect in accordance with clause 6.20.29; and then

(b) the revised value published in each final report by the Economic Regulation Authority pursuant to clause 6.20.29, from the time specified in the relevant final report until such time as a further revised value is published and takes effect in a subsequent final report.

6.20.13. The Economic Regulation Authority must annually review the value of the Minimum STEM Price and must:

(a) determine whether the Minimum STEM Price is appropriate in accordance with clause 6.20.14; and

(b) subject to clause 6.20.15, determine the value of the Minimum STEM Price, with reference to clause 6.20.16 and in accordance with clauses 6.20.17 to 6.20.20, where the Economic Regulation Authority determines that the current value of the Minimum STEM Price is not appropriate.

6.20.14. In determining whether the Minimum STEM Price is appropriate under clause 6.20.13(a), subject to clause 1.35.2, the Economic Regulation Authority must consider without limitation, if since the last annual review of the Minimum STEM Price under clause 6.20.13:

(a) the Balancing Market has settled at the Minimum STEM Price in one or more Trading Intervals because, in the Economic Regulation Authority's reasonable opinion, the Minimum STEM Price was too high;

(b) AEMO dispatched a Facility below the sum of all quantities priced at the Minimum STEM Price in the relevant Forecast Balancing Merit Order, for reasons other than Downwards Out of Merit dispatch and dispatch of LFAS or other Ancillary Services, because, in the Economic Regulation Authority's reasonable opinion, the Minimum STEM Price was too high;

(c) there has been a change in the generation fleet in the SWIS that, in the Economic Regulation Authority's reasonable opinion, is likely to result in:

i. the current Minimum STEM Price being materially lower than necessary to achieve the criterion in clause 6.20.16(a), including but not limited to an upgrade or the retirement of a Facility with high cycling costs; or

ii. the current Minimum STEM Price being too high to achieve the criterion in clause 6.20.16(a), including but not limited to the increase of cycling costs due to deterioration or aging of an existing plant; and

(d) a Market Participant has notified the Economic Regulation Authority that it considers the Minimum STEM Price is not appropriate or requested the Minimum STEM Price be revised or amended and provided reasons for the basis of its consideration or request.

6.20.15. The Economic Regulation Authority must not revise the value of the Minimum STEM Price under clause 6.20.13(b), if it determines the Minimum STEM Price is appropriate under clause 6.20.13(a).

6.20.16. The Minimum STEM Price must:

- (a) allow clearance of the Balancing Market without the Balancing Price being equal to the Minimum STEM Price in most circumstances; and
- (b) subject to clause 6.20.16(a), limit Market Participants' exposure to Balancing Prices that would threaten the financial viability of a prudent Market Participant.

6.20.17. When revising the value of the Minimum STEM Price in accordance with clause 6.20.13(b), the Economic Regulation Authority must:

- (a) determine for credible scenarios of low demand, the price at which the operator of the Facility with the highest cycling costs per MW in the scenario would, acting reasonably, decommit the Facility should the Balancing Price equal or fall below that price for a single Trading Interval; and
- (b) revise the Minimum STEM Price to be the highest price determined under those scenarios that is lower than 95 percent of all of the prices determined under clause 6.20.17(a).

6.20.18. When determining the credible scenarios of low demand for the purpose of clause 6.20.17(a), the Economic Regulation Authority may use historic scenarios but must also account for any changes expected to the SWIS that would come into effect prior to the time that the Minimum STEM Price would apply and that are likely to have an effect on the Balancing Price. The changes include, but are not limited to:

- (a) expected changes in system demand;
- (b) any expected entrance of a new Facility that will participate in the Balancing Market;
- (c) expected changes to an existing Facility; and
- (d) any expected permanent exit of a Facility from the Balancing Market.

6.20.19. When determining the cycling costs of a Facility under clause 6.20.17(a), the Economic Regulation Authority must consider:

- (a) the factors that a Market Generator acting reasonably would consider in making a decommitment decision for the Facility with the highest cycling cost in the SWIS, assuming that all energy sent out by the Facility is settled at the Balancing Price:
 - i. the cost to decommit and recommit within the timeframe specified under clause 6.20.19(a)(iii), including start-related fuel and variable operating and maintenance costs of the Facility;
 - ii. the minimum stable level of operation of the Facility;
 - iii. the minimum time the Facility must remain out of service once decommitted before recommitment is possible;

iv. any expected losses or gains, opportunity costs and cost savings that the Market Generator would incur as a result of decommitment for the duration of the minimum time the Facility must remain out of service; and

(b) any other matters that the Economic Regulation Authority deems relevant.

6.20.20. In determining the cycling costs of a Facility pursuant to clause 6.20.17(a), the Economic Regulation Authority must have regard to the Wholesale Market Objectives and must, as far as practicable, use information about the cost the relevant Facility would incur as provided by the relevant Market Participant but may use estimates where the Economic Regulation Authority considers reasonable.

6.20.21. When undertaking its review under clause 6.20.13, the Economic Regulation Authority may request a Market Participant to provide the information listed in clause 6.20.19(a)(i) for a specific Facility if the Economic Regulation Authority considers that it needs this information.

6.20.22. If the Economic Regulation Authority requests information under clause 6.20.21, the Economic Regulation Authority must specify the time by which the information must be provided and must give the Market Participant at least 10 Business Days to provide the requested information.

6.20.23. If the Economic Regulation Authority requests information under clause 6.20.21, the respective Market Participant must provide this information within the timeframe specified in the request.

6.20.24. A Market Participant may, by the timeframe specified for the close of submissions under clause 6.20.27, provide the Economic Regulation Authority with evidence regarding the costs a Facility incurs when decommitting for the purpose of the Market Rules and which the Economic Regulation Authority must consider in determining the revised value for the Minimum STEM Price under clause 6.20.13(b).

6.20.25. Where a Market Participant provides the Economic Regulation Authority with satisfactory evidence under clause 6.20.24, the Economic Regulation Authority must consider the information when determining the revised Minimum STEM Price as far as the information affects the Economic Regulation Authority's reasonable estimate of any costs that a prudent Market Generator would incur when decommitting its Facility in the scenarios under clause 6.20.17(a).

6.20.26. In conducting the review required by clause 6.20.13, the Economic Regulation Authority must prepare and publish on its website a draft report setting out:

(a) its determination and reasons as to the appropriateness of the current value of the Minimum STEM Price; and

(b) if applicable:

i. the proposed revised value for the Minimum STEM Price;

- ii. how it arrived at the revised value for the Minimum STEM Price and, subject to the Economic Regulation Authority's confidentiality obligations, details of how the Economic Regulation Authority determined the values that applied in respect of each of the factors described in clause 6.20.19; and
- iii. a proposed effective date for the revised value.

6.20.27. The Economic Regulation Authority must publish a request for submissions from interested parties on the draft report referred to in clause 6.20.26 on its website where the deadline for the submissions must be no earlier than six weeks after the date of publication of the draft report.

6.20.28. Prior to revising the value of the Minimum STEM Price in accordance with clause 6.20.29, the Economic Regulation Authority may publish a request for further submissions on its website. Where the Economic Regulation Authority publishes a request for further submissions in accordance with this clause, it must request submissions from all sectors of the Western Australia energy industry, including end-users.

6.20.29. After considering the submissions received on the draft report referred to in clause 6.20.27 and any submissions received under clause 6.20.28, the Economic Regulation Authority must:

- (a) publish any submissions received on its website;
- (b) prepare and publish on its website a final report, setting out:
 - i. its determination and reasons as to the appropriateness of the current value of the Minimum STEM Price; and
 - ii. if applicable:
 - 1. the revised value for the Minimum STEM Price;
 - 2. how it arrived at the revised value for the Minimum STEM Price and, subject to the Economic Regulation Authority's confidentiality obligations, details of how the Economic Regulation Authority determined the values applied in respect of each of the factors described in clause 6.20.19; and
 - 3. the date the revised value is to take effect, where the effective date must be at least five Business Days after the publication of the report; and
- (c) if applicable, inform AEMO of the revised value for the Minimum STEM Price and when the revised value is to take effect.

6.20.30. A revised value for the Minimum STEM Price replaces the previous value after the Economic Regulation Authority has published its final report in accordance with clause 6.20.29, with effect from the time specified in final report.

...

10.5.1. AEMO must set the class of confidentiality status for the following information under clause 10.2.1 as Public and AEMO must make each item of information available from or via the Market Web Site after that item of information becomes available to AEMO:

...

(e) details of bid, offer and clearing price limits as approved by the Economic Regulation Authority including:

- i. the Benchmark Reserve Capacity Price;
- ii. the Maximum STEM Price; ~~and~~
- iii. the Alternative Maximum STEM Price; and
- iv. the Minimum STEM Price,

including rules that could cause different values to apply at different times;

...

...

10.7. Rule Participant Market Restricted Information

...

10.7.2. AEMO must set the class of confidentiality status for all information provided by a Market Participant to the Economic Regulation Authority under clauses 6.20.23 and 6.20.24 as Rule Participant Market Restricted.

...

11. Glossary

...

Minimum STEM Price: Means ~~negative \$1,000.00 per MWh.~~ the minimum price that a Market Participant can use in Price-Quantity Pairs in a STEM Submission and in Balancing Price-Quantity Pairs in a Balancing Submission, as determined in accordance with section 6.20.

...

Appendix A. Responses to Submissions Received in the Second Submission Period

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
Submissions relating to issues raised in the Rule Change Proposal			
Set the Minimum STEM Price to be the price lower than 90% of prices determined under scenario outcomes			
1	Alinta	<p>When AEMO is considering low demand scenarios, Alinta Energy suggests that AEMO needs to consider the following scenarios:</p> <ul style="list-style-type: none"> • where peaking facilities are committed for the morning peak and intend to stay online, if financially feasible, until the conclusion of the evening peak to save on start-up and maintenance costs. This scenario will become more pronounced as solar penetration increases in the SWIS; and • where there are no peaking facilities online and baseload facilities need to decommit during the low demand period. <p>This means the Minimum STEM Price may be set by different technologies depending on the scenario.</p>	See section 7.2.3 of this report.
2	ERA	<p>The selection of the 10th percentile for setting the price floor appears arbitrary. For example, generators with high cycling costs would be willing to receive a more negative price (pay more to buyers) below the price floor to avoid the higher cost of cycling. With a price floor set at the 10th percentile these generators will incur losses.</p>	See section 7.2.3 of this report
3	ERA	<p>The possible inclusion of several Facilities' costs in the calculation and variability of those costs can result in a</p>	See the Rule Change Panel's response to issue 2 of this appendix.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>distribution of minimum supply costs with a bi-modal or multi-modal shape and a long tail on the negative side, as shown in the stylised diagram in Figure 1 in the ERA's submission. In the tail of the distribution, the possible minimum supply costs are, on average, substantially lower than the 10th percentile of the distribution.</p>	<p>The Rule Change Panel notes that opportunity costs during the periods where generating units must remain out of service once decommitted may be one of the largest factors impacting the Minimum STEM Price, and that these opportunity costs are unlikely to have a bi-modal or multi-modal distribution, so the distribution of the Minimum STEM Price is also unlikely to have a bi-modal or multi-modal distribution.</p> <p>Nevertheless, if the distribution turns out bi-modal or multi-modal, the Minimum STEM Price will only fail to reflect the outcomes in the negative tail if these scenario outcomes represent less than 5% of all scenarios. The Rule Change Panel considers that it would not be prudent to eliminate the risk that the Facility with the highest cycling costs in these scenarios will incur a loss because it has to cycle at the Minimum STEM Price completely. The Rule Change Panel notes that the choice of the 5th percentile will be subject to the ERA's five-yearly review of the methodology for setting the Energy Price Limits.</p>
4	ERA	<p>The price floor calculation should account for very low supply costs, so the benefit of low wholesale prices can be passed on to consumers. One possible approach is to calculate the 10 per cent conditional cost at risk, identified as CCaR in Figure 1 of the ERA's submission. This approach will limit possible losses:</p> <ul style="list-style-type: none"> • For generators with lower energy supply costs than the conditional cost at risk. 	<p>See the Rule Change Panel's response to issues 2 and 3 of this appendix and section 7.2.3 of this report.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<ul style="list-style-type: none"> That Synergy is likely to incur in the Balancing Market from bidding capacity to provide Ancillary Services at the price floor. 	
Methodology			
5	Bluewaters NewGen	<p>With regards to the methodology in which the Minimum STEM Price will be calculated, Bluewaters and NewGen propose some steps to achieve a price that realistically represents low system demand scenarios and the actual costs that a cycling generator may face in these scenarios.</p> <p>Bluewaters and NewGen are supportive of the RCP's proposal to limit the calculation of Minimum STEM Price based on credible low system load scenarios to prevent any price distortions that may occur if a generator is selected to represent these costs that rarely generates during these situations. This would align the new Minimum STEM Price methodology with the way in which AEMO reviews the Alt/Max STEM Price; analysis is conducted to identify which peaking facilities are responding to price events and the associated run times.</p> <p>Bluewaters and NewGen suggest that there should be some scrutiny over what is considered in de-commitment costs. There can be possible variances in de-commitment costs between a generator that is preparing to 'cycle' and fully expects to return as soon as possible, versus one that is de-committing for a substantial amount of time (for extended outage works for example). Bluewaters proposes that this is specified in the provision of new rules to accurately capture a plant's cycling costs.</p>	<p>The Rule Change Panel considers that the methodology, as outlined in the Amending Rules, provides that only cycling costs for Facilities that are expected to return as soon as possible are considered.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>It is believed that the combination of these two variables will lead to a Minimum STEM Price that accurately represents the cost (and no more) at which all generators become indifferent to generating or cycling at that point in time.</p>	
6	ERA	<p>The ERA suggests that the Rule Change Panel should consider whether the price floor needs to be periodically recalculated or whether it should be fixed at negative \$1,000. Experience from the National Electricity Market demonstrates that there is inherent and substantial uncertainty in price floor calculations. In 2014, the Australian Electricity Market Commission (AEMC) cautioned against drawing any conclusions from price floor modelling because of the considerable uncertainty in the estimated cycling costs included in the calculation. The AEMC decided to maintain the price floor at negative \$1,000/MWh, even though its modelling suggested a price floor of negative \$50/MWh. Since 2000, and despite at least four periodic reviews, the price floor in the NEM has remained at negative \$1,000/MWh.</p>	<p>The Rule Change Panel considers that the Minimum STEM Price should only be recalculated if it is deemed inappropriate and that its appropriateness should be assessed annually.</p> <p>The Rule Change Panel notes that the modelling of the floor price undertaken by the Reliability Panel in the NEM follows a very different approach than the approach proposed by the Rule Change Panel. In particular, the Reliability Panel models which floor price would be needed based on a pre-assessment of which facilities would be competing for dispatch. This approach excludes coal fired power plants because, in the scenarios considered, the residual load in the NEM is not expected to require coal fired power plants to cycle. Thus, the floor price is set by the cycling costs of plants other than coal fired power plants. With the methodology outlined in the Amending Rules of this report, the Minimum STEM Price would be based on plants with the highest cycling costs which, due to their longer times to return to service, are most likely to be coal fired power plants and co-generation plants.</p> <p>See section 7.2.1 of this report.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
7	ERA	<p>If the Rule Change Panel maintains periodic calculation of the floor price, the ERA makes the following comments on the proposed clause 6.20.8A.¹²</p> <p>“Credible” low demand scenarios can happen at any time of year and generators are likely to have different cycling costs across trading intervals and seasons. Therefore, there is substantial uncertainty in the calculation of cycling costs.</p>	The Rule Change Panel agrees with the ERA.
8	ERA	<p>The proposed clause specifies that the minimum supply cost distribution is to be developed based on decommitment costs. The term “decommitment” in the clause is not explained. The ERA assumes that the term refers to cutting the energy supply of a facility to zero. However, by only considering decommitment costs, some credible low supply cost scenarios may be excluded from the calculation. For instance,</p> <ul style="list-style-type: none"> Some embedded generation facilities produce electricity as a by-product of steam generation that is used in an industrial process. For such facilities, the opportunity cost of a change to the electricity output of the generator above the minimum stable generation limit can be very large. 	<p>The Rule Change Panel has changed the term ‘decommitment costs’ to ‘cycling costs’ in clauses 6.20.14, 6.20.17, 6.20.19 and 6.20.20 of the Amending Rules.</p> <p>The Rule Change Panel notes that opportunity costs are included in the factors that are to be considered when determining cycling costs in clause 6.20.19. These opportunity costs should account for costs associated with a change in electricity output above the Facility’s minimum stable level of generation.</p> <p>The Rule Change Panel considers that the intent of the Minimum STEM Price is not to enable energy storage but to facilitate competition for dispatch between Facilities with high cycling costs at times of low system demand. However, if the Minimum STEM Price is set at a level that avoids market distortions then the Minimum STEM Price will not be</p>

¹² Clause 6.20.8A as proposed in the Draft Rule change Report was as follows:

6.20.8A. When determining the Minimum STEM Price AEMO must:

- (a) determine for credible scenarios of low demand, the price at which the operator of the Facility with the highest decommitment costs per MW of its minimum stable level of operation in the scenario would, acting reasonably, decommit the Facility should the Balancing Price equal or fall below that price for a single Trading Interval; and
- (b) determine the Minimum STEM Price to be the price that is lower than 90percent of the prices determined under clause 6.20.8B(a).

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<ul style="list-style-type: none"> A generator may install a battery to store electricity during times of excess generation and so avoid incurring decommitment costs during periods of low demand. The opportunity cost of installing technology to avoid cycling costs would not necessarily be included in the proposed price floor calculation. 	<p>a disincentive for investment in measures that make a Facility more flexible (e.g. the installation of a battery).</p>
9	ERA	<p>Proposed clause 6.20.8A(a) establishes the distribution of minimum supply costs and clause 6.20.8(b) then sets the price floor at the 10th percentile of that distribution. However, proposed clause 6.20.7(a)iii specifies that the price floor should be set based on the decommitment costs of the Facility with the highest decommitment cost, which is the minimum of the distribution calculated in clause 6.20.8A(a). Therefore, proposed clause 6.20.7(a)iii appears inconsistent with proposed clause 6.20.8A.</p>	<p>The Rule Change Panel considers that proposed clauses 6.20.7(a)(iii), 6.20.8(b) and 6.20.8A(a) in the Draft Rule Change Report are not inconsistent. This is because clause 6.20.7(a) states that the Minimum STEM Price is to be based on the cycling costs of the Facility with the highest cycling cost and clauses 6.20.8 and 6.20.8A specify how this is to be determined. However, the Rule Change Panel has amended clause 6.20.13 (which represents the context of clause 6.20.7(a)(iii) in the Draft Rule Change Report) to remove this perceived inconsistency.</p>
10	ERA	<p>The requirement for AEMO to use “actual costs” to calculate the floor price [in proposed new clause 6.20.20] is unclear. The Rule Change Panel proposed that AEMO determine the price floor based on a merchant power station but adjust its determination if a Market Participant provided contractual evidence that would lead to a lower Minimum STEM Price. The implications of a contractual arrangement on the cost to supply electricity should be assessed against the objectives of the WEM. For example, a contractual arrangement that results in increasing the long-term supply cost of electricity to consumers would not be consistent with the objectives of</p>	<p>The Rule Change Panel has further amended clause 6.20.20 to clarify that the ERA should use information about the cost the relevant Facility would incur instead of ‘actual costs’.</p> <p>The Rule Change Panel has amended clause 6.20.20 to clarify that the ERA must have regard to the Wholesale Market Objectives when determining the cycling costs and clause 6.20.25 to clarify that the ERA must only consider costs that a prudent Market Generator would incur.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		the WEM and so should not be used to calculate the price floor.	
11	AEMO	<p>AEMO notes that step two of the process requires AEMO to conduct a full review to determine the Minimum STEM Price, having regard to several factors specified in proposed clauses 6.20.8, 6.20.88, 6.20.8C, 6.20.80 and 6.20.8E. The Amending Rules detail the factors to be considered when determining the Minimum STEM Price, however the rules do not describe how each of these factors are to be used. This means that a detailed methodology must be developed before undertaking the review.</p> <p>While AEMO could implement the full review step as currently drafted, AEMO's concern is that this will require significant effort over an alternative approach. This effort includes:</p> <ul style="list-style-type: none"> • Addressing potential gaps when gathering inputs (e.g. relies on voluntary provision of generator data, where data is not provided assumptions will need to be formulated) • Ensuring that the application of complex methodologies are transparent for Market Participants and the regulator • Addressing alternative interpretations and disagreement when progressing through the regulatory approval process. <p>AEMO will seek to implement the Amending Rules as efficiently as possible but the effort required to fulfil the obligations under the current drafting will likely lead to high ongoing costs to undertake the annual reviews. AEMO</p>	<p>The Rule Change Panel has made further changes to the draft Amending Rules, giving the function of the annual review of the Minimum STEM Price to the ERA instead of AEMO. Therefore:</p> <ul style="list-style-type: none"> • AEMO will not have to implement the review; and • there will not be a regulatory approval process. <p>The Rule Change Panel considers that this reduces the anticipated costs of any determination of a new Minimum STEM Price. See sections 7.2.2 and 7.7 of this report.</p> <p>To address the issue regarding the gathering of information, the Rule Change Panel has included new clauses 6.20.21, 6.20.22 and 6.20.23 to introduce a head of power for the ERA to collect the information it needs for the determination of the Minimum STEM Price from Market Participants and to outline a process for the ERA to collect that information.</p> <p>In regards of the transparency of the methodology to calculate the Minimum STEM Price, the Rule Change Panel considers that most regulatory activities and processes are complex and require adequate transparency; and the ERA is well placed to address these issues.</p> <p>To increase the transparency of the process, the Rule Change Panel has further amended clause 6.20.18 to provide guidance on how the scenarios for the determination of the Minimum STEM Price should be set.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		therefore proposes an alternative in the form of a codified approach.	
12	AEMO	A codified approach will reduce the level of effort and the associated cost for undertaking the review. It also provides consistency from one review to the next. A codified approach means that the prescribing instruments (e.g. rules and procedures) will contain sufficient detail for AEMO to apply a methodology, rather than having to develop a detailed methodology first, and potentially at each review.	The Rule Change Panel considers that the review of the Minimum STEM Price should not be completely codified so that the process can be adjusted as the market evolves and to account for any particular circumstances at the time of the review. The Rule Change Panel considers that the chosen approach strikes the right balance between codification and flexibility. That is, it provides sufficient guidance for the ERA and participants but also sufficient flexibility for the ERA to consider the particular circumstance at the time of the reviews.
13	AEMO	<p>A codified approach could be implemented either through the Market Rules, or as combination of the Market Rules and a Market Procedure. A Market Procedure will allow slightly more flexibility if changes to the approach are required at a later time, because the change process is less onerous than that for a rule change.</p> <p>If the latter approach is taken, AEMO considers that the owner or approver of the Market Procedure should be the ERA as it will be the ultimate approver of the Minimum STEM Price.</p>	
14	AEMO	<p>AEMO considers that the following are some of the matters a codified approach could specify either in the Market Rules and/or Market Procedures:</p> <ul style="list-style-type: none"> Generator data: While some technical generator data will be available through Standing Data, others will need to be obtained from Market Participants. The Amending Rules do not provide for a process to obtain this data for the purpose of determining the Minimum STEM Price. 	<p>The Rule Change Panel has:</p> <ul style="list-style-type: none"> further amended clause 6.20.20 to clarify that the ERA should use information provided by participants but may use estimates where appropriate; introduced new clauses 6.20.21, 6.20.22 and 6.20.23 to introduce a head of power for the ERA to collect the information it needs for the determination of the

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>This would be a voluntary process for Market Participants. Where this data is not provided, guidelines should prescribe how the required data is to be developed (for example in a Market Procedure). Similar issues arise with cost data (e.g. SRMC).</p> <ul style="list-style-type: none"> • Future Balancing Prices: Modelling of Balancing Prices is required. Guidelines on how to determine and how to express the distribution of these prices should be prescribed (for example, in a Market Procedure). • Minimum STEM Price calculation equation: The Market Rules or Market Procedure could specify an equation with the guidelines for the assumptions required, explained in a Market Procedure. • 90th percentile: Proposed clause 6.20.8A(b) requires the Minimum STEM Price to be lower than 90 percent of the prices determined through the modelling exercise. Guidelines on the approach to obtaining the 90th percentile should be prescribed (for example, in a Market Procedure). 	<p>Minimum STEM Price from participants and to outline a process for the collection of that data; and</p> <ul style="list-style-type: none"> • introduced new clause 6.20.18 to provide guidelines for the determination of the scenarios of low demand. <p>The Rule Change Panel considers that it is inappropriate to set a formula in the Market Rules for the calculation of the Minimum STEM Price because the appropriate calculation methodology could vary over time, and it is appropriate to leave determination of this calculation methodology to the expertise of the ERA.</p> <p>The Rule Change Panel has further amended clause 6.20.17 to clarify how the 95% (that was 90% in the Draft Rule Change Report) are to be obtained from the modelling outcomes.</p>
15	Synergy	<p>Although largely supportive of clauses 6.20.8A and 6.20.88 of the draft Amending Rules, Synergy notes that no quantitative rationale has been provided for selecting 90% as the cut off and therefore, may not be the most efficient cut-off. A more appropriate approach would be to select the threshold based on price elasticity, slightly below the point at which there are no more meaningful quantities offered and therefore negligible efficiency gain. Synergy therefore proposes that the 90% explicit threshold is removed.</p>	<p>The Rule Change Panel notes that there is a gap between -\$215/MWh and -\$1,000/MWh in the current bids in the Balancing Market (i.e. there are usually no Balancing Submissions with a Balancing Price between -\$215/MWh and -\$1,000/MWh). This makes -\$215/MWh the point that Synergy is referring to at which there are no more meaningful quantities offered.</p> <p>However, the Rule Change Panel considers that lifting the Minimum STEM Price to just below this point (-\$215/MWh)</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>would mute the signal that the Balancing Price sends when reaching the Minimum STEM Price. At this price, none of the Market Participants that bid quantities at the Minimum STEM Price during the incidents where the Balancing Price reached the Minimum STEM Price in October 2019 would have an incentive to change their bidding behaviour, which would most likely increase the occurrence of Minimum STEM Price incidents.</p> <p>Please also refer to section 7.2.3 of this report.</p> <p>The Rule Change Panel notes that it has further amended clause 6.20.17 to set the Minimum STEM Price at the value that is lower than 95% of the scenario outcomes.</p>
16	Synergy	Synergy reiterates its suggestions from the initial Draft Rule Change Proposal (RC_2019_05) on the guiding principles that should be adopted in the determination of an appropriate price floor.	The Rule Change Panel notes that the principles suggested by Synergy are included in the proposed Amending Rules as outlined in the Draft Rule Change Report and in this Final Rule Change Report.
17	Synergy	Facilities which are obligated to offer at the Minimum STEM Price are recommended for exclusion from the analysis as there is no benefit in determining decommitment costs for a unit that must be constrained on during periods of low demand. Similarly, Synergy maintains that analysis should be absent of non-market-related externalities and that the Minimum STEM Price should factor in price elasticity in its determination.	The Rule Change Panel notes that, for any quantities that have been cleared in the LFAS Market, the respective Market Participant must bid the minimum generation and any Downwards LFAS Enablement for the relevant Facility at the Minimum STEM Price. All quantities that are required to operate to provide Ancillary Services must also be bid at the Minimum STEM Price. ¹³

¹³ The Rule Change Panel notes that Market Generators must also bid the expected generation quantities for non-balancing active Facilities, which are Intermittent Generators, at the Minimum STEM Price. However, the cycling costs of Intermittent Generators are unlikely to be relevant in the determination of the Minimum STEM Price because non-balancing active Facilities are not required to run and are likely to remove themselves from the market by not operating if they believe that the market is likely to clear at the Minimum STEM Price.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>The Rule Change Panel notes that participation in the LFAS Market is voluntary for all Market Participants other than Synergy and the Market Rules do not specify which Facilities must provide the LFAS or other Ancillary Services. Therefore, the Rule Change Panel considers that Facilities providing LFAS or other Ancillary Services should be included in the assessment of the cycling costs for the determination of the Minimum STEM Price to incentivise the most economic provision of those services</p>
Cost-Benefit			
18	Alinta	<p>In summary, Alinta Energy does not consider that the benefits from determining a revised Minimum STEM Price justify the proposed costs.</p>	<p>The Rule Change Panel has made further changes to the draft Amending Rules to make the ERA responsible for the annual review of the Minimum STEM Price instead of AEMO. This reduces the anticipated costs of any determination of a new Minimum STEM Price – see sections 7.2.3 and 7.7 of this report.</p> <p>The Rule Change Panel notes that the two-step approach for the annual review of the Minimum STEM Price, as set out in the Amending Rules of this report, ensures that a new Minimum STEM Price is only determined if the current Minimum STEM Price is found to be inappropriate. The Rule Change Panel considers that, in this case, the benefits of determining a new Minimum STEM Price will likely outweigh the cost of determining the price.</p>
19	Alinta	<p>Alinta notes that the earliest effective date of a new Minimum STEM Price would be in the second half of 2021. With the introduction of a security constrained economic</p>	<p>The Rule Change Panel notes that the ERA will likely have to determine new scenarios every time it determines a new Minimum STEM Price. Therefore, the Rule Change Panel</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>dispatch energy market and a new essential services market planned to commence by 1 October 2022, facilities may be dispatched very differently to the current market. This means the scenarios that will be used to determine a new Minimum STEM Price may no longer be applicable thus effectively allowing only 12 months to reap the benefits of an updated Minimum STEM Price.</p>	<p>considers that each determination of a new Minimum STEM Price would incur similar costs. However, the Rule Change Panel acknowledges that the change in appropriate scenarios may increase significantly between a determination before and after the commencement of a security constrained dispatch market.</p> <p>The Rule Change Panel notes that the two-step approach for the annual review of the Minimum STEM Price, as set out in the Amending Rules of this report, ensures that a new Minimum STEM Price is only determined if the current Minimum STEM Price is found to be inappropriate. The Rule Change Panel considers that, in this case, the benefits of determining a new Minimum STEM Price will likely outweigh the cost of determining the price, even if the scenarios cannot be recycled.</p>
20	Alinta	<p>As stated in the Draft Report, there has been a behavioural change by Market Participants since the weekend of 12 and 13 October 2019 where the Balancing Price cleared at the Minimum STEM Price. This is evident by the event on 4 January 2020 where the system demand was even lower than the intervals cleared at the Minimum STEM Price but the Balancing Price cleared at -\$45/MWh. This suggests Market Participants are now aware of the risks of keeping generation online during low demand periods and are willing to decommit their Facility before it reaches the Minimum STEM Price. We may not see the Balancing Price clear at the Minimum STEM Price for a significant period of time hence incurring large costs to determine a new Minimum STEM Price may be inefficient use of money.</p>	<p>See section 7.2.1 of this report and the Rule Change Panel's response to issue 19 in this appendix.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
21	Synergy	<p>During the three intervals in which the Minimum STEM Price was reached in October 2019, the impact to Synergy, and therefore taxpayers, was close to a quarter of a million dollars. Any generator who lacked a sufficient contract position to cover their minimum stable generation would also have been exposed.</p>	<p>The Rule Change Panel has clarified with Synergy that its loss was around \$93,000, which included losses due to PPA agreements with other Market Generators that had been exposed to the Minimum STEM Price. However, Synergy noted that with the anticipated increasing penetration of rooftop PV, it expects that Synergy's loss per Trading Interval settled at the Minimum STEM Price would increase by around \$100,000 in 2020.</p> <p>The Rule Change Panel notes that the Minimum STEM Price events in October 2019 and the associated losses were a result of Market Participants' bidding behaviour. The Rule Change Panel also notes that bidding behaviour has changed since the Minimum STEM Price events, as outlined in section 7.2.1 of this report and section 6.1.1 of the Draft Rule Change Report.</p>
22	Synergy	<p>Although the three intervals in which Minimum STEM Price was reached in October 2019 would have provided a windfall gain to retailers and windfall loss for generators who were not adequately hedged, there was no overall gain in the market. This transfer of wealth provides no increase in economic efficiency and conversely, expedites the secession of base load generation which is likely to increase long term electricity supply costs.</p> <p>Given that the frequency of the price floor is anticipated to increase and the transference of wealth at the tax-payer expense is also likely to increase, the preliminary cost of up to \$300,000 for the initial review set by AEMO is justifiable.</p>	<p>The Rule Change Panel notes that Synergy and other Market Generators have changed their bidding behaviour since the three Minimum STEM Price incidents in October 2019, and that the Balancing Market has not cleared at the Minimum STEM Price since those events, even though the system load has been similarly low or lower on several occasions.</p> <p>Regarding the transfer of wealth between Market Participants, the Rule Change Panel notes that the balance of risk in the WEM as a result of the Minimum STEM Price has been in place since the commencement of the Balancing Market in July 2012. The Rule Change Panel considers the risk as currently present is inherent in the</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		Synergy also notes that if the RCP's proposed two-tiered mechanism for the annual review of the Minimum STEM Price is adopted, this would result in downward pressure on subsequent costs on reviews.	design of the WEM and that a reallocation of this risk would be a policy that is best addressed by Government.
Submissions relating to other issues in the Draft Rule Change Proposal			
Draft decision to not set an interim Minimum STEM Price			
23	Synergy	In the context of the Minimum STEM Price, each of the issues with the WEM design outlined in Synergy's submission and addressed in this table under issues (32-36) are interrelated and compounding, meaning that the total effect is greater than the sum of the individual parts. In particular, Synergy considers that the Rule Change Panel's decision in its Draft Report does not adequately address nor mitigate the likely negative effect that maintaining or further decreasing the floor price will have on market efficiency as a result of these interrelated issues, especially in the context of the Balancing Market settling at the floor price with increased regularity in the short to medium term. ¹⁴	The Rule Change Panel refers to its responses to issues 32-36 of this appendix. The Rule Change Panel considers that a Minimum STEM Price that is set at a level that is just low enough to allow for the differentiation of Facilities based on their cycling costs will not lead to inefficient market outcomes unless the system load drops low enough to effect system stability, as noted in the Rule Change Panel's response to issue 41 of this appendix.
24	Synergy	Given the above considerations, and the issues further explored in Synergy's submission, Synergy suggests the Rule Change Panel re-examines its reasons for concluding	The basis for the Rule Change Panel's draft decision has not changed.

¹⁴ The Rule Change panel has slightly altered this sentence after clarifying its meaning with Synergy. The original sentence as written in Synergy's submission was as follows: 'In particular, Synergy considers that the Rule Change Panel's decision in its Draft Report does not adequately address nor mitigate the likely negative effect that maintaining or further decreasing the floor price will have on market efficiency as a result of these interrelated issues, especially in the context of a the floor price being set with increased regularity in the short to medium term.'

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
25	Synergy	<p>there is no need to urgently introduce an interim Minimum STEM Price.</p> <p>Synergy further notes that the interim price of -\$200/MWh was a suggested price only based on Synergy's calculation of the likely de-commitment costs of a 'relevant' generator and as approximately equal to the price at which the BMO ceases to exhibit price elasticity. However, Synergy is open to the determination of a different, relatively adjacent, number if it is demonstrated that it better reflects the decommitment costs of participating 'relevant' generators.</p>	<p>Setting the Minimum STEM Price too high would mute the price signals for Facilities to decommit during low system demand situations and would not incentivise any change in bidding behaviour or investment into options that could make thermal power plants more flexible.</p> <p>There is no clear evidence that the current Minimum STEM Price is inefficient. The Rule Change Panel's analysis and the discussion at the 13 November 2019 MAC meeting suggests that the price at which the generator with the greatest cost to decommit would be financially better off to decommit than to remain committed and generate at maybe lower than -\$1,000/MWh. A more fulsome analysis to determine the efficient Minimum STEM Price would require modelling. The time required to complete this modelling would not enable an interim Minimum STEM Price to be implemented before the next shoulder season. Therefore, the Rule Change Panel considers that it will be more efficient for the ERA to undertake a review in accordance with the proposed process to set the Minimum STEM Price.</p>
Purpose of a price floor			
26	ERA	<p>Under the sub-heading 'Purpose of the Minimum STEM Price', the Draft Rule Change Report states that "a floor price should allow Facilities to order themselves in the Balancing Merit Order so the facilities that are willing to pay the highest price for generating are dispatched down last". The ERA suggests that this is a desirable feature of how a price floor should operate, but it is not the proper objective. Generators can offer to the market based on their</p>	<p>The Rule Change Panel agrees with the ERA that a price floor is not needed to allow for Facilities to order themselves in the Balancing Merit Order so that the facilities that are willing to pay the highest price for generating are dispatched down last.</p> <p>However, the Rule Change Panel notes that the Minimum STEM Price has been a feature of the Market Rules since commencement of the Balancing Market in July 2012, and</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>willingness to sell (their expected cost to supply) without a price floor. The generators with the lowest cost of supply will be scheduled and dispatched first to supply electricity.</p> <p>There may be other reasons to maintain a price floor. These should be clearly articulated, consistent with the WEM objectives and clearly linked to any proposed rule change.</p>	<p>the Rule Change Panel has not received any policy advice from Government indicating that this floor price should be removed. As a result, the Rule Change Panel has determined that the Minimum STEM Price should be set low enough to allow all Facilities to differentiate themselves for dispatch but not lower, as this floor price will not distort the market.</p>
28	ERA	<p>In proposed clause 6.20.8 (b) the second stated objective of the Minimum STEM Price is to:</p> <p><i>“(b) limit Market Participants’ exposure to Balancing Prices that could threaten the financial viability of a prudent Market Participant.</i></p> <p>Is inconsistent with the Wholesale Market objectives of minimising the long-term cost of electricity for consumers. The cost to supply electricity cannot fall below the price floor in any Trading Interval. This could distort market clearing prices and create economic inefficiency because:</p> <ul style="list-style-type: none"> • Generators cannot offer their supply below the price floor when they are willing to do so. This creates a financial risk for generators with high cycling costs and increases wholesale electricity prices above the level they would have been with no price floor. • It could deter the entry of storage technologies that would otherwise take advantage of substantially negative prices to charge their capacity before supplying that capacity to the market when the prices clear at higher levels. 	<p>The Rule Change Panel notes that the first criterion stated in proposed new clause 6.20.16 is to allow clearance of the Balancing Market without the Balancing Price being equal to the Minimum STEM Price in most circumstances.</p> <p>The Rule Change Panel has further amended clause 6.20.16 to make criterion (a) superior to criterion (b) to clarify that the Minimum STEM Price is intended to be sufficiently low to allow Facilities to offer their supply at a price reflecting their costs of cycling.</p> <p>The Rule Change Panel considers that an efficient Minimum STEM Price should allow the Facility with the highest cycling costs to differentiate itself from the Facility with the second highest cycling costs.</p> <p>However, the Rule Change Panel considers that it is not the role of the Minimum STEM Price to provide an incentive or disincentive for investment in batteries or other technologies. If the Minimum STEM Price is set appropriately and the volatility of market outcomes is not sufficient to ensure financial viability for storage technologies, then these technologies will have to earn their money through other channels to be viable (e.g. from Capacity Credits or from</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			Ancillary Services markets). The Rule Change Panel notes that Energy Policy WA is considering treatment of storage facilities in the WEM as part of the Energy Transformation Strategy.
28	ERA	When price floors are calculated, the level of the floor should reflect all variable and avoidable costs a supplier incurs when AEMO requires the supplier to cease (decommit) or vary its generation in response to changing system demand. These costs are commonly referred to as cycling costs. A price floor that reflects cycling costs ensures that generators with very high cycling costs can bid at negative prices to avoid incurring cycling costs when demand is low and abundant generation is available. Consumers can continue to benefit from low energy prices, assuming reduced wholesale prices are ultimately reflected in prices charged by retailers.	The Rule Change Panel has further amended clauses 6.20.14, 6.20.17, 6.20.19 and 6.20.20 to clarify that the cycling costs that the ERA refers to are meant to be considered when determining the Minimum STEM Price. See section 6.2.3 of this report.
Other Comments			
29	Alinta	There are two large wind farms in the SWIS, Yandin Wind Farm and Warradarge Wind Farm, expected to commence operation in the second half of 2020. Alinta Energy believes the wind farms should operate for at least one full year before a new Minimum STEM Price is determined. The new wind farms will structurally change the market so allowing one year of operation will allow other Market Participants to react and the new wind farms will have the required time to make changes to avoid possible Minimum STEM Price events.	The Rule Change Panel agrees that the new wind farms will most likely affect the outcomes of the Balancing Market. However, the Rule Change Panel considers that this may be the case with any new Facility entering the WEM and that such changes should not delay the rectification of inefficient market mechanisms where possible. The Rule Change Panel notes that wind farms usually do not bid at the price floor and would therefore not be affected by any Minimum STEM Price events. The Rule Change Panel considers that the wind farms will most likely affect the ERA's scenarios of

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>the Balancing Market for the determination of the Minimum STEM Price and that is reasonable to expect that the ERA would address the entrance of the new Facilities in a reasonable manner. The Rule Change Panel notes that if the entrance of the new wind farms leads to Minimum STEM Price events due to Market Participants having to adjust to the new market structure, and not because the Minimum STEM Price is distorting the market outcomes then, the ERA will still have the discretion to leave the Minimum STEM Price as is, despite those events.</p>
30	ERA	<p>The ERA considers that Synergy's obligation to provide Ancillary Services could put it in a position that it is unable to cover its efficient costs, and that this is not a desirable outcome. However, the ERA does not consider that amending the Minimum STEM Price is the most appropriate means of addressing the risk that Synergy faces bidding at the price floor. Further that raising the Minimum STEM Price may have unintended and adverse consequences for the market.</p>	<p>The Rule Change Panel agrees with the ERA.</p>
31	ERA	<p>The underlying problem is not the level of the price floor but rather ensuring that Synergy can cover its efficient cost of providing Load Rejection Reserve and downward Load Following Ancillary Services. The Energy Transformation Strategy is considering the essential support services required in the WEM and designing mechanisms to efficiently and economically procure these services. Changes made through the Government's reform of the overall essential services framework and the setting of</p>	<p>The Rule Change Panel agrees with the ERA that Synergy should be able to recover any reasonable costs for providing Ancillary Services and that any barriers to Synergy recovering these costs should be addressed through changes to the LFAS market and/or the procurement and remuneration of other Ancillary Services, not by setting an inappropriately high Minimum STEM Price.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>energy price caps and the price floor are likely to remove or mitigate the risk that Synergy faces in bidding capacity for Ancillary Services at the price floor. The ERA considers that this wholistic approach to resolving the problem is preferable to trying to partly address it through a single and specific rule change.</p>	
32	Synergy	<p>Requirements to self-schedule:¹⁵ The Market Rules require self-commitment by generators, (meaning that the Market Rules require Market Participants to reflect commitment decisions in their Balancing Submissions) and prohibits infeasible dispatch of Facilities resulting from Balancing Submissions. Market Participants are unable to bid such that they:</p> <ul style="list-style-type: none"> a) Fail to clear in one trading interval and are then required to generate in a subsequent trading interval within their recall period; nor b) Clear for a quantity requiring their Facility to operate at a level less than the Facility's minimum stable generation level. <p>Market Participants are therefore incentivised to either offer at their true decommitment levels and risk infeasible dispatch or offer at the price floor to remain on and risk potentially horrific financial outcomes.</p>	<p>The Rule Change Panel acknowledges that Market Generators must self-schedule their Facilities, and if a Market Generator forecasts that the Balancing Price in a Trading Interval will be high enough to incentivise it to generate or to try to avoid cycling, then a strategy to minimise the risk of infeasible dispatch is to bid their Facilities' minimum stable generation at the Minimum STEM Price.</p> <p>Market Generators have the ability to price a Facility at the Maximum STEM Price (at times of low system demand where this would not affect an obligation to bid at SRMC), effectively removing it from the Balancing Market, for periods where the expected costs associated with the risk of clearing a Facility's minimum stable generation at the Minimum STEM Price outweigh the Facility's cycling costs.</p> <p>The Rule Change Panel considers that setting a higher Minimum STEM Price would increase, not reduce, the risk for Facilities to be subject to infeasible dispatch under the two scenarios outlined by Synergy (a and b). That is, if the Minimum STEM Price was set too high, so that many Market</p>

¹⁵ . Synergy considered that the design elements addressed in issue 34 to 37 mean that Market Participants are incentivised, or sometimes even required under the Market Rules, to offer at the Minimum STEM Price even when that price is below their cost to decommit.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>Generators are willing to pay to generate, then there will be no incentive for Market Generators to self-schedule their Facilities to not generate in times of low system demand. There would also be an increased risk of the Balancing Market clearing at the Minimum STEM Price and therefore an increased risk of infeasible dispatch.</p>
33	Synergy	<p>Forecasting variance:¹⁶ The decision to commit is made well in advance and takes into account factors such as intertemporal constraints, the current state of the facility, recall times and gate closure restrictions. For Synergy, the decision to commit a base load generator can be required up to 24 hours in advance.¹⁷ This decision is therefore heavily reliant on the accuracy of system demand forecasts which frequently varies between 200 MW to 500 MW, further impeding a Market Participant's ability to predict when it should offer at its true decommitment cost.</p>	<p>The Rule Change Panel agrees that Synergy's current gate closure for the Balancing Market reduces Synergy's ability to respond to forecast changes. The Rule Change Panel notes that its final decision on RC_2017_02 (Implementation of 30-Minute Balancing Gate Closure) will significantly reduce Synergy's gate closure for the Balancing Market. These changes will commence on 1 December 2020.</p> <p>The Rule Change Panel acknowledges that:</p> <ul style="list-style-type: none"> • starting a thermal power plant from cold requires time; and • AEMO's demand forecast may not be accurate. <p>However, the Rule Change Panel noted in its Draft Rule Change Report for this proposal (RC_2019_05), that Market Generators can and should assess the risk of the Balancing Price reaching the Minimum STEM Price and should include this risk in their bidding strategy. This risk is inherent to participation in the WEM and can be mitigated by self-</p>

¹⁶ . Synergy considered that the design elements addressed in issue 34 to 37 mean that Market Participants are incentivised, or sometimes even required under the WEM Rules, to offer at the floor price even when that price is below their cost to decommit.

¹⁷ The Rule Change Panel has clarified with Synergy that the stated timeframe of 24 hours is the result of Synergy's current gate closure for the Balancing Market as well as the time it takes to facilitate a cold start for a coal fired power plant.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			supply, entering into bilateral contracts or hedging in the STEM.
34	Synergy	Inefficient gate closure restrictions: ¹⁸ The restrictions on Independent Power Purchasers (IPPs) resubmitting after Gate Closure and Synergy's more onerous restrictions on resubmitting mean that it's almost impossible to forecast with any level of certainty the specific Trading Intervals where a Facility will decommit and therefore increase the amount of times a Market Participant must offer at the floor price. ¹⁹	The Rule Change Panel noted in its Draft Rule Change Report that Market Generators can and should assess the risk of the Balancing Price reaching the Minimum STEM Price and should include this risk in their bidding strategy. This risk is inherent to participation in the WEM and can be mitigated by self-supply, entering into bilateral contracts or hedging in the STEM. The Rule Change Panel considers that accounting for this risk should not per se increase the number of times that a Market Participant must bid into the Balancing Market at the Minimum STEM Price but will result in appropriate quantities being bid at the Minimum STEM Price.
35	Synergy	Ancillary service obligations: ¹⁹ As the default provider of Ancillary Services, Synergy is obligated to offer services at the floor price, regardless of where it has been set.	The Rule Change Panel considers that Synergy's generation quantities associated with its obligations to provide Ancillary Services is largely hedged by its Bilateral Contracts and its own consumption in the majority of Trading Intervals. The Rule Change Panel noted in the Draft Rule Change Report that the Market Rules allow AEMO to procure Ancillary Services from other Rule Participants to reduce costs to the market (clauses 3.11.8 and 3.11.8A of the Market Rules). The Rule Change Panel considers that, for Trading Intervals where Synergy's Bilateral Contracts and own consumption

¹⁸ Synergy considered that the design elements addressed in issue 34 to 37 mean that Market Participants are incentivised, or sometimes even required under the WEM Rules, to offer at the Minimum STEM Price, even when that price is below their cost to decommit.

¹⁹ The Rule Change Panel has clarified with Synergy that Synergy considers that Market Generators will bid more quantities at the Minimum STEM Price if it is uncertain about the forecast accuracy.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>may be less than the generation quantities needed to provide the Ancillary Services, it may be more efficient for AEMO to procure the Ancillary Services from other Market Participants.</p> <p>The Rule Change Panel considers that any issues in the Ancillary Services market should be addressed through another Rule Change Proposal rather than by distorting the Balancing Market by setting an inappropriate Minimum STEM Price. The Rule Change Panel also notes that Energy Policy WA is currently reviewing procurement of Ancillary Services as part of its Energy Transformation Strategy.</p>
36	Synergy	<p>Contractual obligations:¹⁹ The contractual arrangements that underpin project finances, including those set out in Power Purchase Agreements (PPAs), are difficult and costly to amend. If the off-taker is liable for the cost of generation, Market Participants operating under PPAs may be incentivised to generate at the Minimum STEM Price irrespective of market price signals and their true decommitment costs.</p>	<p>The Rule Change Panel considers that the Market Rules should not be amended to account for contracts that lead to inefficient market outcomes. If a contract incentivises a Market Generator to offer its Facility at the Minimum STEM Price (e.g. because its counterparty is liable for the associated costs), then it would be in the interest of the counterparty to amend the contract if the costs become substantial. The Rule Change Panel considers that the Market Rules should not protect anyone from inefficient participation in the Balancing Market or from inefficient contracts.</p>
37	Synergy	<p>The compounded effect of the requirement to self-schedule, large forecasting variances and inefficient gate closure restrictions makes it near impossible for Market Participants to respond efficiently to changing load and essentially forces some Market Participants to offer at the Minimum STEM Price, regardless of the price at which it is set.</p>	<p>The Rule Change Panel agrees that power plants that are relatively slow and inflexible are not able to respond well to short term price signals. Such Facilities may not be suited to be exposed to the volatility of the Balancing Market, so at least the minimum generation of these Facilities should be hedged with bilateral contracts or the relevant Market</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
38	Synergy	Synergy also notes that these issues have a particularly large and discriminatory effect upon base load generators, which generally have high minimum stable generation levels, long recall periods between start-ups and very high decommitment costs.	<p>Participant's own consumption. Market Participants are best placed to assess the price risk that their Facilities are facing when participating in the Balancing Market.</p> <p>The Rule Change Panel considers that it would not be prudent to set the Minimum STEM Price at a level that protects any Facility from the inherent risk of intraday forecast volatilities. Such protection would increase the number of incidents where the Balancing Market settles at the Minimum STEM Price.</p>
39	Synergy	An inefficiently low Minimum STEM Price will only result in magnifying the financial penalty to Market Participants who seek to comply with the Market Rules, whether this be for avoiding infeasible dispatch or providing ancillary services.	<p>The Rule Change Panel agrees that the Minimum STEM Price should not be set so low that it creates unnecessary financial risks for any Market Participants. However, the Rule Change Panel considers that a Minimum STEM Price that is set too high is more likely to incentivise Market Generators to offer more quantities at the Minimum STEM Price, even during times of low system demand, which increases the risk of the Balancing Market clearing at the Minimum STEM Price and therefore the risk for Facilities with cycling costs above the Minimum STEM Price to be decommitted as a result of AEMO using the tie break procedures in the Market Procedure referred to under clause 7A.3.3 of the Market Rules. Therefore, a Minimum STEM Price that is set too high is more likely to lead to infeasible dispatch.</p>
40	Synergy	More seriously, should the Minimum STEM Price be set too low and the market regularly clears at this price, this is likely to unnecessarily expedite the exit of base load generation	<p>The Rule Change Panel considers that the Balancing Market should be designed to facilitate the economic dispatch of Facilities. If the resulting dispatch is threatening system reliability (e.g. because a Facility that is needed for system</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>which may have unintended consequences for system reliability.</p>	<p>stability cannot profitably operate), this should be addressed through mechanisms such as Network Control Services contracts.</p> <p>The Rule Change Panel considers that the Balancing Market should not be designed to guarantee the financial viability of Facilities that cannot manage demand volatility and for which the minimum generation quantities are not hedged by Bilateral Contracts or the Market Participant's own consumption.</p>
41	Synergy	<p>Issues will likely arise in relation to a general market failure when the market clears at the price floor and Facilities have bid out of the market and are unable to return to service for evening peak. If application of the WEM Rules results in:</p> <ul style="list-style-type: none"> • the Balancing Market incentivising too many coal-fired generation facilities to decommit (e.g. because the relevant Market Participants cannot risk being exposed to an artificially, and inefficiently, low floor price); and • those Facilities are physically unable to return in time, there is likely, at times, to be insufficient generation to meet demand without System Management intervening in the market, for example by constraining on some of those Facilities (and therefore constraining off other Facilities). 	<p>The Rule Change Panel considers that this scenario becomes more likely if the Minimum STEM Price is set too high, as there would most likely be increased quantities bid at the Minimum STEM Price during low system load and therefore a higher likelihood of decommitment of Facilities using the tie break procedure in the Market Procedure referred to under clause 7A.3.3 of the Market Rules.</p> <p>If the generation fleet in the WEM does not suit the load profile in the SWIS, then it would be inappropriate to set the Minimum STEM Price at a level that reduces the incentive to change the generation fleet.</p> <p>As outlined in the Rule Change Panel's response on issue 6 of this appendix, where the Balancing Market leads to dispatch that is threatening system reliability (e.g. because a Facility that is needed for system stability cannot profitably operate), this should be addressed through different mechanisms such as Network Control Services contracts.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
42	Synergy	A market that effectively requires outside intervention to perform its core function of ensuring the safe and economically efficient provision of energy can only be considered a market failure, especially when considered in combination with the balancing market objective that the balancing price is to reflect the cost of dispatch.	<p>Please refer to the Rule Change Panel's response to issue 41 of this appendix.</p> <p>The Rule Change Panel considers that if the Balancing Market would regularly clear at the Minimum STEM Price because the Minimum STEM Price does not reflect cycling costs, it would not reflect the cost of dispatch either.</p>
43	Synergy	To place this into perspective, if Synergy decommits all of its Muja units, these units may not be able to return to service for the evening peak due to recall times. Likely implications to system security and voltage control will precipitate a need for intervention by System Management, which may be forced to dispatch out-of-merit generation.	The Rule Change Panel notes that this issue is unrelated to the level of the Minimum STEM Price.
44	Synergy	Base load generators will be effectively constrained on at the cost of the market. However, if the Minimum STEM Price triggers the exit of too many base load generators from the SWIS, this may result in even greater system reliability issues due to the resultant unavailability of some ancillary services. If the floor price is maintained at -\$1,000/MWh, or set even lower, these adverse impacts will be exacerbated.	<p>Please see RCP Support's responses to issues 40, 41, 42 and 43.</p> <p>The Rule Change Panel notes that Synergy suggests that all coal fired power plants operate on standalone (unhedged) basis and are fully exposed to the Balancing Market. The Rule Change Panel considers that this is unrealistic.</p>
45	Synergy	Synergy does, however, acknowledge that proposed changes to the Balancing Merit Order tie-breaker methodology (AEPC_2020_01) may reduce the exposure to unwarranted out of merit dispatch. These proposed amendments allow Market Participants the option of bidding their Minimum Generation in a separate tranche that would be cleared ahead of Non-active Balancing Facilities and	The Rule Change Panel agrees that the Minimum STEM Price should not be set so low that it creates unnecessary financial risks for any Market Participants. However, the Rule Change Panel considers that a Minimum STEM Price that is set too high is more likely to incentivise Market Generators to offer more quantities at the Minimum STEM Price, even during times of low system demand, which increases the risk of the Balancing Market clearing at the

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>remaining non-Ancillary Services energy in the event of a tie-breaker.</p> <p>However, the proposed methodology continues to apply a random number to each Facility to determine the priority for decommitment within each tranche. The risk of out of merit dispatch still exists if a large Scheduled Facility with a long restart time was assigned a high random number and was decommitted, leading to an instantaneous generation shortfall.</p>	<p>Minimum STEM Price and therefore the risk for Facilities with cycling costs above the Minimum STEM Price to be decommitted as a result of AEMO using the tie break procedures in the Market Procedure referred to under clause 7A.3.3 of the Market Rules. Therefore, a Minimum STEM Price that is set too high is more likely to lead to infeasible dispatch.</p>
46	Synergy	<p>The ERA has stated that, at least in relation to the SRMC market power mitigation obligations in the balancing market, Market Participants are not allowed to include a "risk margin" as part of its 'costs'. Therefore, the RCP's claim that an LFAS market participant can simply account for negative price cap risks in their LFAS market offers does not appear to be a viable option.</p>	<p>The Rule Change Panel understands that Synergy can price its expectation of the Balancing Price in its LFAS Submission, including its assessment of the likelihood of the Balancing Market clearing at the Minimum STEM Price.</p>
47	Synergy	<p>The LFAS Market is fundamentally broken because participants can, and do, withhold small amounts of capacity from the LFAS market forcing Synergy as the default provider to recover large costs over a very small marginal tranche, therefore forcing the LFAS price up unnecessarily. If this includes the need to recover a negative \$1,000/MWh balancing price cost associated with generation by facilities only online for LFAS, the LFAS price could reach astronomically high values to be "cost reflective". This outcome would be highly inefficient and only exists because of flaws in the market design.</p>	<p>The Rule Change Panel acknowledges that the withholding strategy outlined by Synergy may lead to inefficient provision of LFAS. However, the Rule Change Panel considers that this potential flaw in the LFAS market should be addressed by changes to the LFAS market. The Rule Change Panel notes that the WA Government is considering changes to the LFAS market as part of the Energy Transformation Strategy.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
48	Synergy	LFAS participants that stand to benefit from the balancing market clearing at the floor price can increase the likelihood of this happening by clearing in the LFAS Market. By clearing in the LFAS market without displacing Synergy completely, they will increase the overall quantity of capacity required to be offered into the balancing market at the floor price.	See the Rule Change Panel's response to issue 47 of this appendix.
49	Synergy	Maintaining the Minimum STEM Price at or below negative \$1,000/MWh results in no economic efficiency gains but only results in inefficiencies such as the potential for massive wealth transfers and incentives for strategic and inefficient bidding behaviours.	<p>The Rule Change Panel considers that setting the Minimum STEM Price at a level that is low enough to allow Market Generators to differentiate their Facilities by their cycling costs would incentivise Market Generators to only bid their Facilities at the Minimum STEM Price if they are fully hedged at times of low system demand, which increases efficiency of the market.</p> <p>The Rule Change Panel considers that setting the Minimum STEM Price higher than is necessary to allow Market Generators to differentiate their Facilities by their cycling costs may result in a wealth transfer to Market Generators with inflexible Facilities with unhedged minimum stable level of generation from Market Customers and from Market Generators with Facilities with very high cycling costs. The Rule Change Panel considers that a reallocation of this risk would be a policy decision that is best addressed by Government.</p>
50	Synergy	The Rule Change Panel has suggested that participants will not be affected by a low floor price because they will be effectively hedged against such prices by their bilateral contracts or retail books. In Synergy's case, the proposed	The Rule Change Panel acknowledges Synergy's comment but considers that this issue is unrelated to the Minimum STEM Price. The high penetration of solar PV is a function of government incentives and declining costs of PV units,

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>hedging is infeasible and founded on a lack of understanding by the Rule Change Panel as to what drives Synergy's exposure.</p> <p>As the default supplier, Synergy has no discretion over the make of its residential book (i.e. its "Foundation Load") which constitutes 62% of total customer demand during periods of peak demand and operates as a generator during periods of low demand (calendar year 2019). Nor does Synergy have control over the federal renewable energy target that have led to increasing solar penetration within the Foundation Load.</p>	<p>and it would be inconsistent with Wholesale Market Objective (c) to set the Minimum STEM Price at a level to protect Synergy from risks associated with this phenomenon.</p>
51	Synergy	<p>In comparison to the New Contestable Load, the volatility observed in the Foundation Load is significantly more difficult to hedge against due to the significant fluctuation in demand. This fluctuation is caused by the increase in solar penetration which has led to demand from the residential book becoming negative and turning the Foundation Load into a generator during periods of low load. This, combined with the requirement to provide LFAS, means that Synergy has negative demand, and a concurrent obligation to supply, which creates exposure to the Minimum STEM Price due to no fault of its own.</p>	<p>Please see the Rule Change Panel's response to issue 50.</p>
52	Synergy	<p>This exposure is set to continually increase considering growth of solar penetration at a rate of 200MWh to 230MWh each year. The Foundation Load's maximum demand is in excess of 2,100MWh above Synergy's own generation capacity and minimum demand is at c. -100MWh. Contrary to the statements made in the Draft Report, these fluctuating</p>	<p>Please see the Rule Change Panel's response to issue 50. The Rule Change Panel notes that the impact of hedging on setting the Minimum STEM Price is only relevant for the quantities that Synergy must offer at the Minimum STEM Price to fulfil its Ancillary Services obligations. However, as outlined in the Draft Rule Change Report and the Rule</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		demand levels cannot be prudently hedged against in the WEM.	<p>Change Panel's response to issue 4, the Market Rules allow AEMO to procure Ancillary Services from other Rule Participants to reduce costs to the market (clauses 3.11.8 and 3.11.8A of the Market Rules). The Rule Change Panel considers that, for Trading Intervals where Synergy's Bilateral Contracts and own consumption are likely to be less than the generation needed to provide Ancillary Services, it may be more efficient if AEMO would procure the Ancillary Services from other Market Participants.</p> <p>The Rule Change Panel considers that any issues in the Ancillary Services market should be addressed through another Rule Change Proposal rather than by distorting the Balancing Market by setting an inappropriate Minimum STEM Price. The Rule Change Panel also notes that Energy Policy WA is currently reviewing procurement of Ancillary Services as part of its Energy Transformation Strategy.</p>
53	Synergy	<p>Lastly, the premise of hedging requires Market Participants to be notified sufficiently in advance of Gate Closure in order to reflect this in their pricing. As illustrated by the three intervals in which the SWIS reached Minimum STEM Price to date, there was no indication of reaching the price floor prior to the actual occurrence. Synergy notes this issue will occur more regularly as the balancing price is set at the floor price more often.</p> <p>Demand volatility in the Foundation Load and market design issues such as variance in forecasting therefore make it exceedingly difficult for Synergy to hedge effectively.</p>	Please see the Rule Change Panel's responses to issues 33 and 52.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
54	Synergy	<p>Synergy disagrees with the suggestion that externalities should be considered in the determination of an appropriate Minimum STEM Price and notes that there are serious implications for the market if this approach is adopted.</p> <p>Primarily, Synergy considers that accounting for externalities in the floor price will exacerbate the reasons a Facility may offer at the floor price and further exacerbate the effects associated with the floor price being set at a value that is unrelated to differentiation of decommitment costs (as outlined in Part 1 of its submission).</p>	<p>The Rule Change Panel considers that opportunity costs are part of the cycling costs.</p> <p>The Rule Change Panel considers that, as noted in the Draft Rule Change Report, disregarding 'non-market externalities' in the determination of cycling costs would be inappropriate because:</p> <ul style="list-style-type: none"> • a rational Market Participant should take into account all relevant matters when calculating its cycling costs, including what Synergy has called a 'non-market externality'; and • excluding 'non-market externalities' would be against Wholesale Market Objective (c).²⁰
55	Synergy	<p>Synergy defines 'non-market-related externalities' as the considerations (costs, benefits, contracts, etc) associated with using generation plant for purposes other than providing energy for the electricity market. In the same way non electricity market revenues such as steam revenues are considered externalities, so are PPA contracts.</p> <p>A facility may have contractual drivers that influence its bidding and in turn, artificially skew decommitment costs to a significantly lower figure. As observed by the price floor events on Sunday 13 October, Non-Scheduled Generation accounted for 10% of energy offered at the floor. It is more prudent to assume that the decision to offer at the price floor</p>	<p>Please see the Rule Change Panel's response to issue 36.</p>

²⁰ Wholesale Market Objective (c) is:

to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>is influenced by external contracts as opposed to a true reflection of its decommitment costs.</p> <p>Ultimately, if there is an external contract in place which has a 'must run ' provision, then the turn down price is theoretically infinite which means its decommitment cost accounting for externalities is also negative infinity.</p> <p>It is inappropriate and economically inefficient to allow external markets and externalities to drive electricity market outcomes. Allowing so will not only render market outcomes irrelevant but is also discriminatory against market participants who do not have such facilities or are not subject to the same contractual obligations.</p> <p>During the impending periodic review, it is imperative that AEMO seriously consider whether the benefits of setting a floor price low enough to recover the decommitment costs of generators accounting for externalities outweigh the economic consequences to the market.</p>	
56	Synergy	<p>When the market clears at the Minimum STEM Price for reasons other than differentiating between decommitment costs of different generators, the most efficient floor price is the minimum price at which there is no price elasticity in the Balancing Merit Order (BMO).</p> <p>Such a floor price allows a functioning market to operate when prices settle above that price, but, when the price does reach the floor price, the market inefficiencies and market flaws associated with a price clearing that is unrelated to the costs of producing the relevant electricity are not compounded by an artificially low floor price.</p>	<p>The Rule Change Panel acknowledges that if the system load falls below the level necessary for AEMO to securely operate the system in any Trading Interval (previously noted by AEMO to be at around 700 MW), it is likely that AEMO will have to dispatch out of merit, as it will have to dispatch specific Facilities to maintain system security. In this case, a lower Minimum STEM Price is likely to result in higher out of merit compensation. The Rule Change Panel is unable to assess this risk.</p> <p>The Rule Change Panel notes that there is a gap between -\$215/MWh and -\$1,000/MWh in the current bids in the</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>Balancing Market (i.e. there are usually no Balancing Submissions with a Balancing Price between $-\\$215/\text{MWh}$ and $-\\$1,000/\text{MWh}$). Therefore, the point that Synergy is referring to at which there is no price elasticity is just below $-\\$215/\text{MWh}$.</p> <p>However, the Rule Change Panel considers that setting the Minimum STEM Price just below $-\\$215/\text{MWh}$ as proposed by Synergy would most likely result in more quantities being bid at the Minimum STEM Price at times of low system demand, which would increase the risk of the Balancing Market settling at the Minimum STEM Price.</p>

Appendix B. Responses to Submissions Received in the Further Submission Period

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
Responsibility for annually reviewing and setting the Minimum STEM Price			
1	Synergy	<p>The ERA Secretariat has quoted that “reviews of whether the current Minimum STEM Price is appropriate could be covered in the ERA’s existing budget” whereas AEMO has provided preliminary estimates of c. \$300,000 for the initial review and c. \$70,000 for subsequent reviews. Synergy has concerns regarding the marked difference in costs provided by the ERA Secretariat and AEMO and questions whether the same rigour would be applied given the variance. Synergy would expect that irrespective of which party takes responsibility to review the Minimum STEM Price, an independent consultant should be engaged for the initial review.</p> <p>Although understanding of the RCP’s intent to minimise costs, Synergy considers that the ERA may have underestimated, or AEMO may have overestimated, the initial costs of the initial review and that the actual cost differential may not be that significant.</p>	The Rule Change Panel notes Synergy’s comment but has no reason to dismiss the cost estimates provided by AEMO or the ERA.
2	Synergy	<p>Further, under clause 6.20.6 of the Market Rules, AEMO remains responsible for the annual review of the appropriateness of the value of the Minimum STEM Price (sic) and Alternative Maximum STEM Price. Synergy supports the segregation of duties and notes that the approach should be consistent across all Energy Price Limits.</p>	The Rule Change Panel considers that the Energy Price Limits are regulatory instruments and that it is best regulatory practice for the independent regulator (the ERA) to undertake the Energy Price Limits reviews, not the market operator (AEMO). The Rule Change Proposal considers that it may also be appropriate to also move the obligation and responsibility for reviewing the other Energy Price

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			Limits from AEMO to the ERA, but that such a change is outside the scope of this Rule Change Proposal.
Setting the Minimum STEM Price			
3	Alinta	<p>It is difficult to recommend a percentage to be used in the CCaR or scenario calculations without knowing what scenarios and factors along with their weighting are being considered. The percentage that should be initially used should be very conservative to ensure that all generators will be able to differentiate themselves. The ERA should assess this percentage in each review to determine whether the current percentage used needs to be revised for the next review. Based on this principle, Alinta Energy recommends the Minimum STEM Price to be set at:</p> <ul style="list-style-type: none"> • the price that represents the 2% CCaR; or • the price that is lower than 98% of the prices determined; or • a price that all generators will be able to differentiate themselves based on their decommitment costs. 	<p>The Rule Change Panel agrees with Alinta that the percentage should be set conservatively and has therefore further amended clause 6.20.17 to set the Minimum STEM Price at the value that is lower than 95% of the prices determined in the scenarios.</p> <p>The Rule Change Panel agrees with Alinta that the percentage may need to be adjusted after a review. However, the Rule Change Panel considers that the percentage should be set in the Market Rules as part of the methodology for determining the Minimum STEM Price and that any changes should be subject to the rule change process. The Rule Change Panel considers that this approach will provide the adequate balance of codification and flexibility for the determination of the Minimum STEM Price.</p> <p>The Rule Change Panel notes that the percentage would be subject of the ERA's annual review of the methodology for setting the Minimum STEM Price. See section 7.2.3 of this report.</p>
4	Synergy	Synergy recommends that the Minimum STEM Price should be set at "any other specific price or value that is based on the decommitment costs" and reaffirms its view	The Rule Change Panel notes Synergy's comment and considers that the ERA should be trusted to determine whether the current Minimum STEM Price

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		that if the price is set inefficiently low, this potentially creates unnecessary risk to generators and unnecessary costs to the market, especially if instances of floor prices are triggered with increasing regularity.	is appropriate and, if not, to determine an appropriate value for the Minimum STEM Price. See the Rule Change Panel's response to issue 3 in this appendix.
5	Synergy	In the Draft Report, the ERA "suggested that the choice of the 90% threshold could result in a Minimum STEM Price that is too high and therefore may not allow for the differentiation of Facilities". Synergy notes that in determining the Minimum STEM Price, it is critical to demonstrate that the additional risk placed onto generators will be less costly to the Market compared to reliance on AEMO to either turn down a generator or administer the tie-breaker mechanism.	The Rule Change Panel considers that Market Generators are best placed to deal with the risk of the Market settling at the Minimum STEM Price. The Rule Change Panel considers that the market distortion resulting from the Balancing Market clearing regularly at the Minimum STEM Price because the Minimum STEM Price is set too high would have implications beyond the immediate costs for Market Participants.
Proposed head of power for collecting information needed for the Minimum STEM Price determination			
6	Alinta	Alinta Energy is strongly of the opinion that confidential and commercially sensitive information should only be used for the purpose for which it was provided. Alinta Energy considers that the cost to decommit and recommit, including start-related fuel and variable operating and maintenance costs of the Facility is confidential and commercially sensitive information. The approval of RC_2018_05: ERA access to market information and SRMC investigation process means that any information provided under the proposed clauses can be used by the ERA for any of its functions. While we recognise that RC_2018_05 has included some protections for participants regarding the use of market related	The Rule Change Panel considers that the ERA will need the option to access information about the relevant Facilities' cycling costs to make a qualified determination of the Minimum STEM Price. The Rule Change Panel notes that the Amending Rules in this report allow the ERA to use estimates where appropriate but that the decision as to whether the use of estimates should lay with the ERA. The Rule Change Panel considers that the Market Rules should entrust the ERA to decide which information it needs for the determination of the Minimum STEM Price.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>information Alinta Energy's preference is to not include a head of power to require participants to provide cycling information. Instead Alinta Energy would prefer that the process for determining average cycling costs mirror the AER's Reliability Standard and Settings Review, whereby a consultant undertakes modelling in its Market Floor Price assessment. This approach is also in-line with the approach used for the Energy Price Limits.</p>	<p>In general, the Rule Change Panel considers that the Market Rules should entrust the ERA with the decision on how to enact this function, including the decision on whether all or part of the function should be facilitated by a consultant. The Rule Change Panel notes that the Market Rules do not specify that the calculations for the Maximum STEM Price and the Alternative Maximum STEM Price must be undertaken by a consultant but that AEMO chooses to engage a consultant and could change this decision at any time.</p> <p>The Rule Change Panel further notes that the requirement for the ERA to engage a consultant may significantly increase the cost of the review.</p>
7	Alinta	<p>If Alinta's suggestion to require a consultant to undertake the modelling is not accepted, then Alinta Energy recommends that Market Participants should be able to self-assess which decommitment and recommitment costs are material and relevant to be provided to AEMO or the ERA. When Market Participant are calculating decommitment costs which may include start-related fuel and variable operating and maintenance costs, the operating costs may be magnitudes lower than start-related fuel costs hence providing additional information when it serves no benefit would be very inefficient.</p> <p>The self-assessment has incentives for Market Participants as if a Market Participant does not include a material cost then it will not be used in determining the</p>	<p>The Rule Change Panel refers to its final decision on the Rule Change Proposal RC_2018_05 (ERA access to market information and SRMC investigation process). The Rule Change Panel notes that the ERA can already collect the relevant information under section 51 of the ERA Act. Therefore, in alignment with its final decision regarding RC_2018_05, the Rule Change Panel considers that the use of information collected by the ERA for the determination of the Minimum STEM Price should not be limited to any of its functions.</p> <p>The Rule Change Panel considers that the Market Rules should entrust the ERA to decide which</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>cost of the facility decommitting. This is why the Market Rules should not be too prescriptive to allow Market Participants to assess the materiality themselves.</p> <p>Alinta provided alternative drafting to implement this approach</p>	<p>information it needs to determine the Minimum STEM Price.</p>
8	Alinta	<p>For the avoidance of doubt, while we don't support providing this information, if cycling information is required to be provided by participants to either AEMO or the ERA, then this information should be classified as Rule Participant Market Restricted.</p>	<p>The Rule Change Panel has further amended clause 10.7.2 to classify this information as 'Rule Participant Market Restricted'.</p>
9	Synergy	<p>Synergy understands the rationale in introducing a head of power for AEMO to obtain the necessary information required to determine decommitment costs and supports this decision. However, Synergy wishes to highlight that information that is confidential in nature, or 'AEMO Confidential', must not be published.</p>	<p>The Rule Change Panel notes that it has decided to entrust the ERA with the annual review of the Minimum STEM Price. Therefore, the Ruel Change Panel has further amended clauses 6.20.21, 6.20.22 and 6.20.23 to provide the ERA, instead of AEMO, with the head of power to collect the information it needs to determine the Minimum STEM Price and has set the confidentiality status of this information to 'Rule Participant Market Restricted'. The Rule Change Panel confirms that this information must not be published.</p>
10	Synergy	<p>Lastly, under proposed clause 9.20.8F, Market Participants are provided "at least five Business Days to provide" information requested by AEMO. Synergy considers that this may prove difficult to comply with, particularly if counterparty liaison is involved, and requests</p>	<p>The Rule Change Panel has further amended clause 6.20.22 (clause 9.20.8F in the Draft Rule Change Report) to extend the minimum time that a Market Participant has to provide the ERA with the requested information from 5 to 10 Business Days.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		that the timeframe be extended to at least 10 Business Days.	
Guiding principles for setting the credible scenarios			
11	Synergy	The Rule Change Panel has proposed further amendments to the draft rules to “reflect that the only contract information that a prudent Market Generator would incur should be considered when setting the Minimum STEM Price”. Synergy reiterates its view that externalities, which may involve must run provisions associated with steam generation for example, should not be considered in setting the Minimum STEM Price.	See section 7.2.1 of this report and section 6.1.1 of the Draft Rule Change Report.
Other			
12	Alinta	Alinta recommends aligning the Market Rules with the objective of the Minimum STEM Price which is to prevent market instability by imposing a negative limit on the total potential volatility of market prices. The Minimum STEM Price should allow generators to differentiate themselves according to the value they place on being dispatched by bidding at negative price levels.	The Rule Change Panel agrees with Alinta and notes that the Amending Rules align with this approach.
13	AEMO	AEMO reiterated its overarching concern that whilst the Amending Rules detailed the factors to be considered when determining the Minimum STEM Price, the Amending Rules did not describe how each of these factors were to be used in the calculation. This means that a detailed methodology must be developed before	See the Rule Change Panel's response to issues 11 to 13 of appendix A of this report.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>undertaking the review. AEMO's concern is that this will require significant effort including:</p> <ul style="list-style-type: none"> • Ensuring that the application of complex methodologies are transparent for Market Participants and the ERA. • Addressing alternative interpretations and disagreement when progressing through the regulatory approval process. <p>This is the reason for the large variation and uncertainty in AEMO's cost estimate for undertaking the review. AEMO therefore recommended a codified approach, where the prescribing instruments (e.g. rules and procedures) would contain sufficient detail for AEMO to apply a methodology, rather than having to develop a detailed methodology as part of the review.</p>	
14	AEMO	<p>AEMO reiterated its concerns that the proposed approach for determining the Minimum STEM Price does not provide sufficient detail about how the prescribed factors have to be used. Therefore, AEMO reiterated its recommendation to implement a codified approach, where the prescribing instruments (e.g. rules and procedures) would contain sufficient detail for AEMO to apply a methodology, rather than having to develop a detailed methodology as part of the review.</p>	<p>See the Rule Change Panel's response to issues 11 to 13 of appendix A of this report.</p>
15	AEMO	<p>AEMO notes that the RCP Support team is of the view that it has achieved the right balance in the level of codification of the process, albeit has proposed some additional changes to provide further guidance. AEMO still remains</p>	<p>See the Rule Change Panel's response to issues 11 to 13 of appendix A of this report.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		concerned that the level of codification is not sufficient and would lead to excessive effort being spent to undertake the reviews.	
16	AEMO	AEMO therefore continues to recommend further codification. Details of the suggested approach were provided in AEMO's second period submission, which was supported by analysis from an independent consultant.	See the Rule Change Panel's response to issues 11 to 13 of appendix A of this report.
17	AEMO	The Call for Further Submissions indicates that the Rule Change Panel is considering whether the ERA should have responsibility for the proposal and determination of the Minimum STEM Price. AEMO is not opposed to the RCP's consideration of the assignment of responsibilities. However, the RCP may wish to consider the extent to which there may still be inefficiencies (for example, there could be some duplication in effort if it is necessary for AEMO to support the ERA with the Minimum STEM Price review).	The Rule Change Panel considers that the ERA is unlikely to require material support from AEMO to review the Minimum STEM Price.
18	Perth Energy	<p>Perth Energy maintains its view (outlined in the initial submission), that the issue sought to be addressed by this Rule Change Proposal does not warrant changes to re-define the Minimum STEM Price because:</p> <ul style="list-style-type: none"> • prices reaching the floor does not indicate there is a problem with the determination of the Minimum STEM Price; • the current Minimum STEM Price of -\$1,000 meets the requirements of a price floor, and any arbitrary alternative is unlikely to; and 	See the Rule Change Panel's responses to issue 3 in Appendix A of the Draft Rule Change Report and issue 19 of this appendix.

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<ul style="list-style-type: none"> the provision of energy and Ancillary Services are currently conflated, and while we agree they should be decoupled, it is clear this cannot be done effectively ahead of the delivery of the Energy Transformation Strategy. 	
19	Perth Energy	<p>Perth Energy highlights the correspondence between the Minister for Energy (Minister) and the ERA regarding the ERA's five-yearly review of the Energy Price Limits under clause 2.26.3 of the Market Rules which state:</p> <p><i>"A number of important aspects of this review overlap with details of the new WEM arrangements currently being developed by the Energy Transformation Taskforce."</i></p> <p><i>"I consider there to be clear benefit in delaying the clause 2.26.3 review until sometime after October 2022."</i></p> <p><i>"The ERA's review of the method used to calculate energy price limits overlaps with the Energy Transformation Implementation Unit's work stream on market power mitigation."</i></p> <p>The Minister cited benefits of the deferral as: to allow clarity provided by the WEM design and rule changes currently under development; and being in the interests of stakeholders' engagement.</p> <p>Perth Energy agrees with the comments made by the Minister and the ERA in relation to the five-yearly review, and considers they equally apply to Synergy's proposal to redesign the Minimum STEM Price.</p>	<p>The impact of Energy Policy WA's consideration of Energy Price Limits under the Energy Transformation Strategy on this Rule Change Proposal is discussed in section 7.2.1 of this report and section 6.1.1 of the Draft rule Change Report.</p> <p>The Rule Change Panel has made further changes to the draft Amending Rules giving the function of the annual review of the Minimum STEM Price to the ERA instead of AEMO. This reduces the anticipated costs of any determination of a new Minimum STEM Price. See sections 7.2.3 and 7.7 of this report.</p> <p>The Rule Change Panel notes that the two-step approach for the annual review of the Minimum STEM Price, as set out in the Amending Rules of this report, will determine the appropriate and most efficient time for determining a new Minimum STEM Price.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>Perth Energy understands a suite of appropriate market power mitigation tools are being developed as part of the Energy Transformation Strategy for application from October 2022. This would mean the proposed Amending Rules, if expedited could apply for a maximum of 15 months, but could otherwise apply for as few as three months. We highlight the detail that would be needed to develop the process and the time required to collect (or produce where unavailable) input variables and assumptions for modelling purposes is likely to be significant, and therefore expect any assessment of costs and benefits would need to consider a three-month application period likely.</p>	
20	Perth Energy	<p>Perth Energy recommends the Rule Change Panel rejects the Ruel Change Proposal on the basis the proposed amendments:</p> <ul style="list-style-type: none"> • do not address Synergy's concerns, which cannot be done effectively ahead of the introduction of Essential System Services under the Energy Transformation Strategy; • are contrary to market power mitigation measures in the wholesale market and must be considered as part of the overall suite of measures in the WEM Rules and other legislative instruments administered by the Minister and are a matter of policy; and • the expected cost of between \$170,000+ and \$400,000+ is likely to be greater than the overall market benefit given that: 	<p>The Rule Change Panel notes that the issue raised by Perth Energy relates to the proposed amendments in the Rule Change Proposal as submitted by Synergy. The Rule Change Panel considers that the implementation of the two-step approach for the Minimum STEM Price review, where a new value is only determined if the current Minimum STEM Price is found to be inappropriate, adequately addresses the issues raised by Perth Energy.</p> <p>The Rule Change Panel considers that there is a possibility that the Minimum STEM Price becomes inappropriate which could lead to significant market distortion. In this case, it is important that a mechanism is in place to change the Minimum STEM Price to an appropriate value.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<ul style="list-style-type: none"> ○ it will only apply for between three and fifteen months; ○ it is an administered price, which, with the expectation that several input variables and assumptions will need to be estimated where they are unavailable, the input variables and therefore modelled outcomes will not be reflective of the actual costs of plant operating in periods where the price is at the floor, and therefore it is unlikely to be a better price floor and may in fact produce significant unintended consequences; ○ it will only affect market outcomes on the few occasions the market is settled at the floor price – this has only been in three Trading Intervals since Balancing Market commencement - those identified by Synergy as the trigger for this Rule Change Proposal; and ○ changes in the floor price result only in transfers between Market Generators and Market Customers, not overall market benefits. 	<p>See section 7.2.1 of this report and section 6.1.1 of the Draft Rule Change Report.</p>
21	Perth Energy	<p>Should the Rule Change Panel consider there is merit in continuing to progress changes to the WEM Rules, Perth Energy recommends it instead works with the Taskforce to bring forward reform initiatives. This is a pragmatic alternative, and we expect it will result in a more cost-effective, and appropriate arrangement.</p>	<p>The Rule Change Panel notes that it has no influence over the content of the Energy Transformation Strategy.</p> <p>The Rule Change Panel understands that the Taskforce intends to review the controls for efficient market outcomes in the WEM (i.e. market power mitigation arrangements) as part of the Energy Transformation Strategy. The scope of the</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
			<p>Taskforce's review is under development and further amendments to the Market Rules may be contemplated following completion of that work. As a result, the Rule Change Panel is of the view that it is appropriate to assign responsibility for reviewing the Minimum STEM Price to the ERA because the ERA can most efficiently undertake this responsibility, as indicated in section 7.2.2, and that the Taskforce should holistically consider any further changes to the process to review Energy Price Limits via the Energy Transformation Strategy. The Rule Change Panel has not received any opposing advise form the Energy Transformation Taskforce.</p>
22	Sustainable Energy Now (SEN)	<p>It is the opinion of SEN that the Rule Change Proposal fails to address the central issues associated with the cause(s) of outcomes of negative clearing prices and furthermore it does not make a case as to how the proposed changes will address the unintended consequences raised.</p>	<p>The Rule Change Panel notes that the issue raised by SEN relates to the Rule Change Proposal, as submitted by Synergy.</p>
23	SEN	<p>The Rule Change Proposal presents adverse concerns surrounding 'financial losses for market generators under certain operating conditions (such as provision of Ancillary Services).</p> <p>The Rule Change Proposal proposes to amend the Minimum STEM Price from -\$1,000 to -\$200 in the interim while an appropriate methodology is determined. Under this proposal to increase the minimum bid price, there</p>	<p>The Rule Change Panel notes that the issue raised by SEN relates to the proposed amendments in the Rule Change Proposal as submitted by Synergy. The Rule Change Panel has decided to reject the implementation of an interim Minimum STEM Price. See section 6.1.4 of the Draft Rule Change Report and section 7.2 of this report. The Rule Change</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>appears to be no justification under conventional Market Rules since a competitor cannot bid lower.</p> <p>Consequently there will be no ability to differentiate bidders which the present policy will achieve more effectively. In fact, if the minimum STEM balancing price were to be lower, there would be more effective bidding behaviour and naturally less 'crowding' by Market Participants around the present floor price.</p>	<p>Panel considers that this decision adequately addresses SEN's concern.</p>
24	SEN	<p>Should the proposed rule change be adopted, the proponent and not the market customers will be the major beneficiary. The effect is seen as anti-competitive, protectionist and does not deliver a benefit to the market other than to a market generator participant.</p>	
25	SEN	<p>We would like also to draw to the attention of the RCP that in order to encourage urgently needed energy storage (and related markets for which it is known that market rules are under drafting and as proposals in the near term), the greater the price differential (i.e. between maximum and minimum STEM balancing price), the greater the attractiveness for market entrants in this important sector to enter the market. Conversely, in the event of tighter pricing bands as is proposed, the less interesting the opportunity would be for new energy storage market entrants.</p>	<p>The Rule Change Panel considers that the Minimum STEM Price should not be set to incentivise or to disincentivise storage facilities entering the market.</p> <p>The Rule Change Panel agrees with SEN that a Minimum STEM Price that is set inappropriately high may disincentivise the investment in technologies that would increase the flexibility of the generation fleet (e.g. storage facilities), and is of the view that this underscores the need for a process to review the Minimum STEM Price.</p> <p>See sections 7.2.1 and 7.2.3 of this report.</p>
26	SEN	<p>SEN's mission is to encourage the development of the SWIS to transition to the highest possible amount of renewable energy and for fossil fuel generation to be</p>	<p>See the Rule Change Panel's response to issue 25 of this appendix.</p>

Issue	Submitter	Comment/Issue Raised	Rule Change Panel's Response
		<p>reduced at the earliest opportunity. Due to renewable energy generation intermittency, it is essential that storage solutions are introduced into the system as quickly as possible. The proposed rule change would only benefit older market participants with generation types that are least suited to load conditions and ramps and would retard the growth of the necessary storage solutions to be provided as the SWIS transitions to ever higher levels of intermittent renewable generation.</p>	

Appendix C. Further Amendments to the Proposed Amending Rules

The Rule Change Panel proposes to make some further amendments to the proposed Amending Rules following the second and further submission period.

The further amendments to the proposed Amending Rules in the Draft Rule Change Report are as follows (~~deleted text~~, added text, clauses that are included for context but not amended):

...

The Rule Change Panel has introduced new section 1.35 to provide transitional provisions for the ERA's first annual review of the Minimum STEM Price, as outlined in section 7.2.2 of this report.

1.35. Specific Transitional Provisions for the First Review of the Minimum STEM Price

1.35.1. Notwithstanding clause 6.20.13, the Economic Regulation Authority must commence the first review of the Minimum STEM Price under clause 6.20.13 by 1 February 2021.

1.35.2. Notwithstanding clause 6.20.14, for the first review of the Minimum STEM Price under clause 6.20.13(a), the time period for which the Economic Regulation Authority must consider the matters referred to in clause 6.20.14 is at least the period beginning on 1 October 2019 until the commencement of the first review.

...

2.26. Economic Regulation Authority Approval of Administered Prices

The Rule Change Panel has further amended clause 2.26.1 to:

- remove any changes that relate to AEMO's review of the Maximum STEM Price and Alternative Maximum STEM Price because they are not relevant for the ERA's review of the Minimum STEM Price and therefore out of scope for this Rule Change Proposal;
- specify that AEMO's review of the Energy Price Limits is a review of the Maximum and Alternative Maximum STEM Price to increase readability; and
- improve the readability of the clause.

2.26.1. Where AEMO has proposed a revised value for the Benchmark Reserve Capacity Price in accordance with section 4.16 or ~~completes a review~~ a change in the value of one or both of the Maximum STEM Price and the Alternative Maximum STEM Price ~~Energy Price Limits~~ in accordance with section 6.20, the Economic Regulation Authority must:

- (a) review the report provided by AEMO, including all submissions received by AEMO in preparation of the report;

- (b) ~~make a decision as to decide~~ whether ~~or not~~ to approve the revised value for the Benchmark Reserve Capacity Price or any ~~recommended~~ value comprising the Energy Price Limits;
- (c) in making its decision, only consider:
 - i. whether the proposed revised value for the Benchmark Reserve Capacity Price or Energy Price Limit proposed by AEMO reasonably reflects the application of the method and guiding principles described in sections 4.16 or 6.20 (as applicable);
 - ii. whether AEMO has carried out an adequate public consultation process; and
- (d) notify AEMO ~~as to~~ whether ~~or not~~ it has approved the revised or recommended value.

2.26.2. Where the Economic Regulation Authority rejects a revised Benchmark Reserve Capacity Price or ~~an the~~ Energy Price Limit ~~proposed submitted~~ by AEMO it must give reasons and may direct AEMO to carry out all or part of the review process under section 4.16 or 6.20 (as applicable) again in accordance with any directions or recommendations of the Economic Regulation Authority.

The Rule Change Panel has deleted new proposed clause 2.26.3(h) because the ERA already has to make this assessment as part of the annual review. Therefore, there would not be any value for the ERA to make this assessment again. :

- 2.26.3. The Economic Regulation Authority must review the methodology for setting the Benchmark Reserve Capacity Price and the Energy Price Limits not later than the fifth anniversary of the first Reserve Capacity Cycle and, subsequently, not later than the fifth anniversary of the completion of the preceding review under this clause 2.26.3. A review must examine:
- (a) the level of competition in the market;
 - (b) the level of market power being exercised and the potential for the exercise of market power;
 - (c) the effectiveness of the methodology in curbing the use of market power;
 - (d) historical Reserve Capacity Offers and the proportion of Reserve Capacity Offers with prices equal to the Benchmark Reserve Capacity Price, in the case of Reserve Capacity Cycles up to and including the 2014 Reserve Capacity Cycle;
 - (dA) historical Reserve Capacity Offers and the proportion of Reserve Capacity Offers with prices equal to 110 percent of the Benchmark Reserve Capacity Price, in the case of Reserve Capacity Cycles from the 2015 Reserve Capacity Cycle up to and including the 2018 Reserve Capacity Cycle;
 - (dB) historical Reserve Capacity Offers and the proportion of Reserve Capacity Offers with prices equal to 130 percent of the Benchmark Reserve Capacity

Price, in the case of Reserve Capacity Cycles from the 2019 Reserve Capacity Cycle onwards;

- (e) historical STEM Bids and STEM Offers and the proportion of STEM Bids and Offers with prices equal to the Energy Price Limits;
- (f) the appropriateness of the parameters and methodology in section 4.16 and the Market Procedure referred to in clause 4.16.3 for recalculating the Benchmark Reserve Capacity Price;
- (g) the appropriateness of the parameters and methodology in section 6.20 for recalculating the Energy Price Limits;
- ~~(h) whether the Minimum STEM Price meets the objectives referred to in clause 6.20.8;~~
- ~~(i)(h)~~ the performance of Reserve Capacity Auctions, STEM Auctions and the Balancing Market in meeting the Wholesale Market Objectives; and
- ~~(j)(i)~~ other matters which the Economic Regulation Authority considers relevant.

...

6.20. Energy Price Limits

6.20.1. The Energy Price Limits are:

- (a) the Maximum STEM Price;
- (b) the Alternative Maximum STEM Price; and
- (c) the Minimum STEM Price.

6.20.2. The Maximum STEM Price is the value published on the Market Web Site and revised in accordance with clauses 6.20.6 and 6.20.11.

6.20.3. Subject to clause 6.20.11, the Alternative Maximum STEM Price is to equal:

- (a) from 8 AM on September 1, 2006, \$480/MWh; and
- (b) from 8 AM on the first day of each subsequent month the sum of:
 - i. \$440/MWh multiplied by the amount determined as follows:
 - 1. the average of the Singapore Gas Oil (0.5% sulphur) price, expressed in Australian dollars, for the three months ending immediately before the preceding month as published by the International Energy Agency in its monthly Oil Market Report, or the average of another suitable published price as determined by AEMO, divided by;
 - 2. the average of the Singapore Gas Oil (0.5% sulphur) price, expressed in Australian dollars, for May, June and July 2006 or, if a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, for the three months ending immediately before the month preceding the month in

which the revised Alternative Maximum STEM Price takes effect, as published by the International Energy Agency in its monthly Oil Market Report, or the average of another suitable published price as determined by AEMO; and

- ii from 8 AM on September 1, 2006, to 8 AM on 1 September, 2007, \$40/MWh, and for each subsequent 12-month period \$40/MWh multiplied by the CPI for the June quarter of the relevant 12-month period divided by CPI for the 2006 June quarter or, if a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, the June quarter of the year in which the revised Alternative Maximum STEM Price takes effect, where CPI is the weighted average of the Consumer Price Index All Groups value of the eight Australian State and Territory capital cities as determined by the Australian Bureau of Statistics;

rounded to the nearest whole dollar, where a half dollar is rounded up, with the exception that from the date and time that a revised Alternative Maximum STEM Price takes effect in accordance with clause 6.20.11, the revised values supersede the values in 6.20.3(b)(i) and 6.20.3(b)(ii), and are to be the values used in calculating the Alternative Maximum STEM Price for each month subsequent to the month in which the revised Alternative Maximum STEM Price takes effect.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.4 to 6.20.12 and inserted new blank clause 6.20.4.

6.20.4. [Blank]

6.20.5. [Blank]

The Rule Change Panel has further amended clause 6.20.6 to reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.6A to 6.20.14 and 6.20.6B to 6.20.15.

- 6.20.6. AEMO must annually review the appropriateness of the values of the Maximum STEM Price, and Alternative Maximum STEM Price, ~~and Minimum STEM Price and:~~
- (a) ~~must recommend revised values for the Maximum STEM Price and the Alternative Maximum STEM Price;~~

- ~~(b) — must determine whether the Minimum STEM Price is appropriate, and~~
- ~~(c) — must recommend a revised value for the Minimum STEM Price where AEMO determines that the current value of the Minimum STEM Price is not appropriate.~~

The Rule Change Panel has further amended clause 6.20.7 to:

- remove any changes that relate to AEMO’s review of the Maximum STEM Price and Alternative Maximum STEM Price because they are not relevant for the ERA’s review of the Minimum STEM Price and therefore out of scope for this Rule Change Proposal; and
- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO.

6.20.7. In conducting the review required by clause 6.20.6 AEMO:

- (a) ~~must recommend~~ may propose revised values for ~~each of~~ the following:
 - i. the Maximum STEM Price, ~~which~~ where this is to be based on AEMO’s estimate of the short run marginal cost of the highest cost generating works in the SWIS fuelled by natural gas and is to be calculated using the formula in paragraph (b); ~~and~~
 - ii. the Alternative Maximum STEM Price, ~~which~~ where this is to be based on AEMO’s estimate of the short run marginal cost of the highest cost generating works in the SWIS fuelled by distillate and is to be calculated using the formula in paragraph (b); ~~and~~
 - ~~iii. — subject to clause 6.20.6B, the Minimum STEM Price, which is to be based on AEMO’s estimate of the decommitment costs of the Facility with the highest decommitment costs in the SWIS and is to be determined with reference to clause 6.20.8 and in accordance with clauses 6.20.8A and 6.20.8B;~~

(b) must calculate the Maximum STEM Price or Alternative Maximum STEM Price using the following formula:

$$(1 + \text{Risk Margin}) \times (\text{Variable O\&M} + (\text{Heat Rate} \times \text{Fuel Cost})) / \text{Loss Factor}$$

Where

- i. Risk Margin is a measure of uncertainty in the assessment of the mean short run average cost for a 40 MW open cycle gas turbine generating station, expressed as a fraction;
- ii. Variable O&M is the mean variable operating and maintenance cost for a 40 MW open cycle gas turbine generating station, expressed in \$/MWh, and includes, but is not limited to, start-up related costs;
- iii. Heat Rate is the mean heat rate at minimum capacity for a 40 MW open cycle gas turbine generating station, expressed in GJ/MWh;

- iv. Fuel Cost is the mean unit fixed and variable fuel cost for a 40 MW open cycle gas turbine generating station, expressed in \$/GJ; and
- v. Loss Factor is the marginal loss factor for a 40 MW open cycle gas turbine generating station relative to the Reference Node.

Where AEMO must determine appropriate values for the factors described in paragraphs (i) to (v) as applicable to the Maximum STEM Price and Alternative Maximum STEM Price.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered clause 6.20.8 to 6.20.16 and inserted new blank clause 6.20.8.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clauses 6.20.8A to 6.20.17, 6.20.8B to 6.20.19, 6.20.8C to 6.20.20, 6.20.8D to 6.20.24 and 6.20.8E to 6.20.25.

6.20.8. [Blank]

The Rule Change Panel has further amended clause 6.20.9 to:

- remove any changes that relate to AEMO's review of the Maximum STEM Price and Alternative Maximum STEM Price because they are not relevant for the ERA's review of the Minimum STEM Price and therefore out of scope for this Rule Change Proposal;
- specify that AEMO's review of the Energy Price Limits is a review of the Maximum and Alternative Maximum STEM Price to increase readability
- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO; and
- align the clause with current drafting conventions.

6.20.9. In conducting the review required by clause 6.20.6 AEMO must prepare a draft report describing how it has arrived at the recommended a proposed revised value of one or both of the Maximum STEM Price and Alternative Maximum STEM Price each Energy Price Limit. The draft report must also include, subject to AEMO's obligations of confidentiality, details of how AEMO determined the appropriate values to apply for the factors described in clauses 6.20.7-(b)(i) to 6.20.7(b)(v) and 6.20.8A. AEMO must publish the draft report on the Market Web Site and advertise the report in newspapers widely published in Western Australia and request submissions from all sectors of the Western Australia energy industry, including end-users, within six weeks of the date of publication.

The Rule Change Panel has further amended clauses 6.20.9A, 6.20.10 and 6.20.11 to:

- remove any changes that relate to AEMO’s review of the Maximum STEM Price and Alternative Maximum STEM Price because they are not relevant for the ERA’s review of the Minimum STEM Price and therefore out of scope for this Rule Change Proposal; and
- specify that AEMO’s review of the Energy Price Limits is a review of the Maximum and Alternative Maximum STEM Price to increase readability.

- 6.20.9A. Prior to ~~recommending proposing~~ a final revised value for one or both of the Maximum STEM Price and Alternative Maximum STEM Price ~~each of the Energy Price Limits~~ in accordance with clause 6.20.10, AEMO may publish a request for further submissions on the Market Web Site. Where AEMO publishes a request for further submissions in accordance with this clause, it must request submissions from all sectors of the Western Australia energy industry, including end-users.
- 6.20.10. After considering the submissions on the draft report described in clause 6.20.9, and any submissions received under clause 6.20.9A, AEMO must ~~recommend propose~~ a final revised value for one or both of the Maximum STEM Price and Alternative Maximum STEM Price ~~each of the Energy Price Limits~~ and submit those values and its final report, including any submissions received, to the Economic Regulation Authority for approval.
- 6.20.11. A ~~recommended proposed revised~~ value for the Maximum STEM Price and the Alternative Maximum STEM Price ~~any Energy Price Limit~~ replaces the previous value after:
- (a) the Economic Regulation Authority has approved that value in accordance with clause 2.26.1; and
 - (b) AEMO has posted a notice on the Market Web Site of the new value of the applicable Energy Price Limit,
- with effect from the time specified in AEMO’s notice.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.4 to 6.20.12 and inserted new blank clause 6.20.4.

The Rule Change Panel has further amended this clause to reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO.

- 6.~~20.12~~20.4. The Minimum STEM Price is:
- (a) ~~–\$1,000/MWh until the first time~~ –\$1,000/MWh until the first time the value of the Minimum STEM Price is revised by the Economic Regulation Authority and takes effect in accordance with clause 6.20.29; and then specified in the notice posted by AEMO under clause 6.20.11(b) following AEMO’s first review of the Minimum STEM Price under clause 6.20.6; and

- (b) ~~from the time specified in the notice posted by AEMO under clause 6.20.11(b) following AEMO's first review of the Minimum STEM Price under clause 6.20.6, the value published on the Market Web Site and revised in accordance with clauses 6.20.6 and 6.20.11; the revised value published in each final report by the Economic Regulation Authority pursuant to clause 6.20.29, from the time specified in the relevant final report until such time as a further revised value is published and takes effect in a subsequent final report.~~

The Rule Change Panel has inserted new clause 6.20.13 to reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO

6.20.13. The Economic Regulation Authority must annually review the value of the Minimum STEM Price and must:

- (a) determine whether the Minimum STEM Price is appropriate in accordance with clause 6.20.14; and
- (b) subject to clause 6.20.15, determine the value of the Minimum STEM Price, with reference to clause 6.20.16 and in accordance with clauses 6.20.17 to 6.20.20, where the Economic Regulation Authority determines that the current value of the Minimum STEM Price is not appropriate.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.6A to 6.20.14.

The Rule Change Panel has further amended this clause to:

- reflect that the Minimum STEM Price is determined` by the ERA instead of AEMO;
- specify that the ERA should consider if a Minimum STEM Price event was due to the Minimum STEM Price being too high;
- include events where AEMO breaks a tie between quantities priced at the Minimum STEM Price but the Balancing Market settles above the Minimum STEM Price due to the ex-post pricing;
- reflect the proposed further amendments to clause 6.20.16; and
- improve readability.

~~6.20.6A~~20.14. In reviewing determining whether the Minimum STEM Price is appropriate under clause 6.20.~~6(b)~~13(a), subject to clause 1.35.2, AEMO the ERA must consider without limitation, if since the last annual review of the Minimum STEM Price under clause 6.20.13:

- (a) any incidents where the Balancing Market has settled at the Minimum STEM Price since the last annual review under clause 6.20.6the Balancing Market has settled at the Minimum STEM Price in one or more Trading Intervals

because, in the Economic Regulation Authority's reasonable opinion, the Minimum STEM Price was too high;

(b) AEMO dispatched a Facility below the sum of all quantities priced at the Minimum STEM Price in the relevant Forecast Balancing Merit Order, for reasons other than Downwards Out of Merit dispatch and dispatch of LFAS or other Ancillary Services, because, in the Economic Regulation Authority's reasonable opinion, the Minimum STEM Price was too high;

(b)(c) ~~whether~~ there has been a change in the generation fleet in the SWIS ~~since the last annual review under clause 6.20.6 that that, in the Economic Regulation Authority's reasonable opinion,~~ is likely to result in:

- i. the current Minimum STEM Price being materially lower than necessary to achieve the objectives-criterion in clause 6.20.816(a), including but not limited due to an upgrade or the retirement of a Facility with high cycling costs; or
- ii. the current Minimum STEM Price being materially higher than necessary too high to achieve the objectives-criterion in clause 6.20.816(a), including but not limited to the increase of cycling costs due to deterioration or aging of an existing plant; and

(e)(d) ~~whether any a~~ Market Participant has notified ~~AEMO the Economic Regulation Authority~~ that ~~they do not it~~ considers the current Minimum STEM Price is not appropriate or requested the Minimum STEM Price be revised or amended and provided reasons for the basis of its consideration or request.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.6B to 6.20.15.

The Rule Change Panel has further amended this clause to reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO and improve readability

6.20.156B. AEMO the Economic Regulation Authority must not ~~recommend a~~ revised the value for of the Minimum STEM Price under clause 6.20.713(b), if it determines the Minimum STEM Price is appropriate under clause 6.20.6(b)13(a).

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8 to 6.20.16.

The Rule Change Panel has further amended this clause to:

- clarify that the stated criteria are not the objectives of having a Minimum STEM Price but are the criteria to use when setting the value for the Minimum STEM Price; and
- establish that criterion (a) is superior to criterion (b) because the Rule Change Panel considers that a Minimum STEM Price would distort the market if it were set so that it

would not allow Facilities to sufficiently differentiate themselves in most circumstances, as outlined in section 7.2.3 of this report.

The Rule Change Panel notes that an assessment of the need for and objectives of the Minimum STEM Price is outside the scope of the Rule Change Proposal and will be more appropriately considered by the Taskforce as part of its review of the market power mitigation measure in the WEM, as part of the Energy Transformation Strategy.

6.20.816. The ~~objectives of the~~ Minimum STEM Price ~~are to~~ must:

- (a) ~~facilitate~~ allow clearance of the Balancing Market without the Balancing Price being equal to the Minimum STEM Price in most circumstances; and
- (b) subject to clause 6.20.16(a), limit Market Participants' exposure to Balancing Prices that ~~could~~ would threaten the financial viability of a prudent Market Participant.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8A to 6.20.17.

The Rule Change Panel has further amended this clause to:

- reflect that the review of the Minimum STEM price is undertaken by the ERA instead of AEMO; and
- to reflect that the considered costs should not be limited to the minimum stable generation, as raised by the ERA.

6.20.178A. When ~~determining~~ determining the value of the Minimum STEM Price ~~AEMO in accordance with clause 6.20.13(b), the Economic Regulation Authority~~ must:

- (a) determine for credible scenarios of low demand, the price at which the operator of the Facility with the highest ~~decommitment~~ cycling costs per MW ~~of its minimum stable level of operation~~ in the scenario would, acting reasonably, decommit the Facility should the Balancing Price equal or fall below that price for a single Trading Interval; and
- (b) determine the Minimum STEM Price to be the highest price determined under those scenarios that is lower than ~~90~~ 95 percent of all of the prices determined under clause 6.20.8B17(a).

The Rule Change Panel has included new clause 6.20.18 to provide guidance to the ERA on how to determine the credible scenarios of low demand in accordance with section 7.2.3 of this report.

6.20.18. When determining the credible scenarios of low demand for the purpose of clause 6.20.17(a), the Economic Regulation Authority may use historic scenarios but must also account for any changes expected to the SWIS that would come into effect

prior to the time that the Minimum STEM Price would apply and that are likely to have an effect on the Balancing Price. The changes include, but are not limited to:

- (a) expected changes in system demand;
- (b) any expected entrance of a new Facility that will participate in the Balancing Market;
- (c) expected changes to an existing Facility; and
- (d) any expected permanent exit of a Facility from the Balancing Market.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8B to 6.20.19.

The Rule Change Panel has further amended this clause to:

- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO;
- specify the meaning of 'fully exposed to the Balancing Market'; and
- address the ERA's concern that the decommitment cost should not be limited to the minimum stable level of operation.

6.20.19B. When determining the decommitment-cycling costs of a Facility under clause 6.20.8A17(a), AEMO the Economic Regulation Authority must consider:

- (a) the factors that a Market Generator acting reasonably would consider in making a decommitment decision for the Facility with the highest decommitment-cycling cost in the SWIS, that is fully exposed to assuming that all energy sent out by the Facility is settled at the Balancing Price, including but not limited to:
 - i. the cost to decommit and recommit within the timeframe specified under clause 6.20.8B19(a)(iii), including start-related fuel and variable operating and maintenance costs of the Facility;
 - ii. the minimum stable level of operation of the Facility;
 - iii. the minimum time the Facility must remain out of service once decommitted before recommitment is possible;
 - iv. any expected losses or gains, opportunity costs and cost savings that the Market Generator would incur as a result of decommitment for the duration of the minimum time the Facility must remain out of service; and
- (b) any other matters that AEMO the Economic Regulation Authority deems relevant.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8C to 6.20.20.

The Rule Change Panel has further amended this clause to:

- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO;
- address the ERA's concern that the decommitment cost should not be limited to the minimum stable level of operation;
- address the ERA's concern that AEMO should have regard to the Wholesale Market Objectives when determining the cycling costs; and
- address the ERA's concern that the term 'actual costs' is ambiguous.

6.20.208C. In determining the decommitment cycling costs of a Facility under pursuant to clause 6.20.17(a)8A, AEMO the Economic Regulation Authority must have regard to the Wholesale Market Objectives and must, as far as practicable, use actual costs of the relevant Facility with the highest decommitment cost per MW of its minimum stable level of operation in the SWIS information about the cost the relevant Facility would incur as provided by the relevant Market Participant but may use estimates where the Economic Regulation Authority considers reasonable.

The Rule Change Panel has introduced new clauses 6.20.21, 6.20.22 and 6.20.23 to introduce a head of power and process for the ERA to request the information that it would need to determine the decommitment costs in accordance with clause 6.20.19(a)(i), as outlined in section 7.2.3.

The Rule Change Panel notes that the information specified in clause 6.20.19(a)(ii) and (iii) would be available to the ERA as it is provided as part of the Standing Data.

6.20.21. When undertaking its review under clause 6.20.13, the Economic Regulation Authority may request a Market Participant to provide the information listed in clause 6.20.19(a)(i) for a specific Facility if the Economic Regulation Authority considers that it needs this information.

6.20.22. If the Economic Regulation Authority requests information under clause 6.20.21, the Economic Regulation Authority must specify the time by which the information must be provided and must give the Market Participant at least 10 Business Days to provide the requested information.

6.20.23. If the Economic Regulation Authority requests information under clause 6.20.21, the respective Market Participant must provide this information within the timeframe specified in the request.

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8D to 6.20.24.

The Rule Change Panel has further amended this clause to:

- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO;
- address the ERA's concern that the term 'actual decommitment cost' is ambiguous; and
- move the specification of the Confidentiality Class of this information to clause 10.2.7.

6.20.248D. A Market Participant may, by the timeframe specified for the close of submissions under clause 6.20.279, provide AEMO the Economic Regulation Authority with evidence regarding their actual decommitment costs, which information is 'AEMO Confidential' for the purpose of the Market Rules and the costs a Facility incurs when decommitting which AEMO the Economic Regulation Authority must consider in determining the revised value for the Minimum STEM Price under clause 6.20.13(b)7(a)(iii).

The Rule Change Panel has restructured section 6.20 to separate the review process of the Maximum STEM Price and Alternative Maximum STEM Price undertaken by AEMO from the review process of the Minimum STEM Price undertaken by the ERA. Therefore, the Rule Change Panel has renumbered new proposed clause 6.20.8E to 6.20.25.

The Rule Change Panel has further amended this clause to:

- reflect that the review of the Minimum STEM Price is undertaken by the ERA instead of AEMO;
- address the ERA's concern that the term 'decommitment cost' is ambiguous; and
- reflect that the only contract information that a prudent Market Generator would incur should be considered when setting the Minimum STEM Price.

6.20.258E. Where a Market Participant provides AEMO the Economic Regulation Authority with satisfactory evidence under clause 6.20.248B, AEMO the Economic Regulation Authority must consider the information when determining the revised Minimum STEM Price as far as the information affects AEMO the Economic Regulation Authority's reasonable estimate of any decommitment costs in the scenarios under clause 6.20.8A(a) that a prudent Market Generator would incur when decommitting its Facility in the scenarios under clause 6.20.17(a).

The Rule Change Panel has included new clauses 6.20.26 to 6.20.30 to establish the process for the ERA to consult on the annual review of the Minimum STEM Price.

6.20.26. In conducting the review required by clause 6.20.13, the Economic Regulation Authority must prepare and publish on its website a draft report setting out:

- (a) its determination and reasons as to the appropriateness of the current value of the Minimum STEM Price; and
- (b) if applicable:
 - i the proposed revised value for the Minimum STEM Price;
 - ii. how it arrived at the revised value for the Minimum STEM Price and, subject to the Economic Regulation Authority's confidentiality obligations, details of how the Economic Regulation Authority determined the values that applied in respect of each of the factors described in clause 6.20.19; and
 - iii. a proposed effective date for the revised value.

6.20.27. The Economic Regulation Authority must publish a request for submissions from interested parties on the draft report referred to in clause 6.20.26 on its website where the deadline for the submissions must be no earlier than six weeks after the date of publication of the draft report.

6.20.28. Prior to revising the value of the Minimum STEM Price in accordance with clause 6.20.29, the Economic Regulation Authority may publish a request for further submissions on its website. Where the Economic Regulation Authority publishes a request for further submissions in accordance with this clause, it must request submissions from all sectors of the Western Australia energy industry, including end-users.

6.20.29. After considering the submissions received on the draft report referred to in clause 6.20.27 and any submissions received under clause 6.20.28, the Economic Regulation Authority must:

- (a) publish any submissions received on its website;
- (b) prepare and publish on its website a final report, setting out:
 - i. its determination and reasons as to the appropriateness of the current value of the Minimum STEM Price; and
 - ii. if applicable:
 - 1. the revised value for the Minimum STEM Price;
 - 2. how it arrived at the revised value for the Minimum STEM Price and, subject to the Economic Regulation Authority's confidentiality obligations, details of how the Economic Regulation Authority determined the values applied in respect of each of the factors described in clause 6.20.19; and
 - 3. the date the revised value is to take effect, where the effective date must be at least five Business Days after the publication of the report; and
- (c) if applicable, inform AEMO of the revised value for the Minimum STEM Price and when the revised value is to take effect.

6.20.30 A revised value for the Minimum STEM Price replaces the previous value after the Economic Regulation Authority has published its final report in accordance with clause 6.20.29, with effect from the time specified in final report.

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The Rule Change Panel has made changes to clause 10.5.1 to include the minimum STEM Price in the list of items that AEMO must publish on the Market Web Site.

10.5.1. AEMO must set the class of confidentiality status for the following information under clause 10.2.1 as Public and AEMO must make each item of information available from or via the Market Web Site after that item of information becomes available to AEMO:

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- (e) details of bid, offer and clearing price limits as approved by the Economic Regulation Authority including:
 - i. the Benchmark Reserve Capacity Price;
 - ii. the Maximum STEM Price; ~~and~~
 - iii. the Alternative Maximum STEM Price; and
 - iv. the Minimum STEM Price,including rules that could cause different values to apply at different times;

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10.7. Rule Participant Market Restricted Information

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The Rule Change Panel has introduced new clause 10.7.2 to set the Confidentiality Class of the information collected from Market Participants under new clauses 6.20.23 and 6.20.24 to Rule Participant Market Restricted.

10.7.2. Notwithstanding clause 10.2.3A, AEMO must set the class of confidentiality status for all information provided by a Market Participant to the Economic Regulation Authority under clauses 6.20.23 and 6.20.24 as Rule Participant Market Restricted.

11. Glossary

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The Rule Change Panel has further amended the defined term 'Minimum STEM Price' to reflect that the Minimum STEM Price also applies to the consumption bid in the STEM Submission.

Minimum STEM Price: Means the minimum price ~~at which a Market Participant can offer generation in the STEM or the Balancing Market~~ that a Market Participant can use in Price-Quantity Pairs in a STEM Submission and in Balancing Price-Quantity Pairs in a Balancing Submission, as determined in accordance with section 6.20.

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