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Department of **Mines, Industry Regulation and Safety**
Energy Policy WA

Market Power Mitigation Strategy

Consultation Paper

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Working together for a **brighter** energy future.

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Energy Policy WA
Level 1, 66 St Georges Terrace
Perth WA 6000

Locked Bag 100, East Perth WA 6892
Telephone: 08 6551 4600

www.energy.wa.gov.au
ABN 84 730 831 715

Enquiries about this report should be directed to:

Email: energymarkets@dmirs.wa.gov.au

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Glossary

Term	Definition
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
BRCP	Benchmark Reserve Capacity Price
CAISO	California Independent System Operator
CR	Concentration Ratio
DER	Distributed Energy Resources
EPWA	Energy Policy WA
ERA	Economic Regulation Authority
ERCOT	Electric Reliability Council of Texas
Enablement Losses	For a Registered Facility operating at its Enablement Minimum in a Dispatch Interval, the difference between energy revenue and the cost of providing that energy
ESS	Essential System Services
FCESS	Frequency Co-optimised Essential System Services
Guiding Principles	The principles endorsed by the Energy Transformation Taskforce for the review of the market power mitigation mechanism
LFAS	Load Following Ancillary Service
LGC	Large-scale Generation Certificate
MAC	Market Advisory Committee
MISO	Midcontinent Independent System Operator
MPM	Market Power Mitigation
NE-ISO	New England Independent System Operator
NEM	National Electricity Market
OCGT	Open Cycle Gas Turbine
PJM	Pennsylvania, New Jersey, and Maryland Energy Market
Portfolio	One or more Facilities under the ownership of an entity or related entities
PST	Pivotal Supplier Test
RCM	Reserve Capacity Mechanism
Reliability Panel	The specialist body established by the AEMC in accordance with section 38 of the National Electricity Law and the National Electricity Rules.
RoCoF	Rate of Change of Frequency
RTM	Real Time Market
SESSM	Supplementary Essential System Services Mechanism

Term	Definition
SRMC	Short-Run Marginal Cost
STEM	Short Term Energy Market
SWIS	South West Interconnected System
Taskforce	Energy Transformation Taskforce
TDOWG	Transformation Design and Operation Working Group
WEM	Wholesale Electricity Market
WEMDE	WEM Dispatch Engine
WEM Rules	Unless otherwise stated, the 'Companion' version Wholesale Electricity Market Rules (1 February 2022)

Unless otherwise defined, capitalised terms have the meaning prescribed in the Wholesale Electricity Market Rules.

Executive Summary

Energy Policy WA (EPWA) is responsible for the delivery of energy policy advice to the Minister for Energy to assist Government in making well-informed decisions that contribute to the supply of secure, reliable, sustainable and affordable energy services to Western Australian households and businesses.

As part of the Western Australian Government's Energy Transformation Strategy (Strategy), the Energy Transformation Taskforce (Taskforce) developed a major suite of reforms to the Wholesale Electricity Market (WEM). This included the introduction of security-constrained economic dispatch, the move to shorter trading intervals and 'gate closure', and a new market for Essential System Services (ESS), a number of which will be co-optimised with energy in the security-constrained economic dispatch process.

The WEM is a relatively small, isolated electricity market which has been, and is expected to continue to be, characterised by high levels of market concentration and opportunities for market power to be exercised. Since it commenced in 2006, the WEM has included arrangements to manage the exercise of market power.

As a result of the major changes to the WEM design, the Taskforce conducted a review of the existing market power mitigation mechanisms. It determined that changes to existing arrangements were necessary to address several deficiencies, particularly the uncertainty and costs associated with the existing ex-post framework.

To direct the development of more suitable market power mitigation mechanisms, the Taskforce endorsed the application of Guiding Principles, which determined that the new framework should:

- be calibrated to ensure it doesn't constrain the recovery of efficient costs by energy producers while protecting consumers from the extraction of abnormal profits by Market Participants with market power;
- provide ex-ante regulatory certainty to promote efficient market operation while reducing the need for ex-post investigation and litigation processes;
- ensure the regulatory effort is proportionate to the cost and the risk being managed so that benefits of improved competition outweigh the regulatory costs; and
- recognise the need for ongoing review to ensure the mechanisms remain balanced and responsive to changing power system conditions and market dynamics and do not overly constrain efficient market conduct.

An initial Consultation Paper outlining a high-level Proposed Design for the market power mitigation mechanisms in the WEM was released by the Taskforce for consultation on 31 March 2021. Submissions to the Consultation Paper presented a mixed response to the Proposed Design.

In May 2021, the Taskforce released an Information Paper in which, taking account of stakeholder submissions, it reaffirmed some components of the design proposed in the Consultation Paper, while recommending that other components undergo further analysis and consultation by EPWA.

EPWA has now undertaken further analysis of the components of the Market Power Mitigation (MPM) Framework highlighted for further review in the Information Paper. A summary of options considered by EPWA in relation to these components, and EPWA's initial view on the options most likely to meet the Guiding Principles is provided in Table 1 and Table 2 below.

Table 1: Summary of analysis conducted for unconfirmed elements

MPM Framework Component Subject to Further Analysis and Consultation	Description of Analysis and EPWA's Initial View
The suitability of the proposed three-part Market Power Test as an objective measure of market power. Section 3.1 of this Consultation Paper.	EPWA considers that a three-part Market Power Test continues to be the most suitable ex-ante mechanism for the WEM, and has focused further analysis on options for an objective Gateway Test (Stage 1 of the Market Power Test). It has considered several methods currently employed in other energy markets, as well as other industry sectors. EPWA's initial view is that using a Static Concentration Ratio method for the Gateway Test that captures Portfolios with 10 percent of total system capacity (defined as the sum of the sent out capacities of all Portfolios) is likely to provide the most certainty and associated competition benefits to the WEM, while also ensuring that the offers most likely to result in adverse market outcomes are subject to further assessment by the Economic Regulation Authority (ERA). EPWA also considers that, compared to other methods considered, the Static Concentration Ratio is likely to be simpler and more cost effective to administer.
Identify a 'safe trading' envelope, including Offer Construction Guidelines. Section 3.2 of this Consultation Paper.	EPWA has considered several options to allow the ERA to carry out the assessments required under this component of the Market Power Test. Several reference-based approaches were considered, as well as a guidance-based option. EPWA's initial view is that guidance-based assessment best meets the Guiding Principles, as this approach is most likely to mitigate the risks associated with market inefficiencies associated with other options, by providing the ERA with some flexibility in applying the assessment requirements. EPWA considers that guidance-based arrangements can meet the ex-ante certainty requirement of the Guiding Principles by requiring the ERA to clearly articulate the matters it will consider in carrying out Offer Assessment and by providing the opportunity for consultation between Market Participants and the ERA on specific matters.
Pre-approval of some offer parameters. Section 3.2 of this Consultation Paper.	EPWA has analysed the benefits and risks of a binding pre-approval framework for offer parameters, as well as suitable alternatives. EPWA considers that the MPM Framework should not provide the opportunity for Market Participants to request agreement by the ERA to offer parameters via a pre-approval framework. Such arrangements are likely to be inconsistent with the Guiding Principles because they will place a heavy regulatory burden on the ERA, and may have adverse implications for enforcement of the General Trading Obligations. Instead, EPWA considers that Market Participants should be able to request individual ex-ante guidance from the ERA on a limited range of offer parameters under a consultation approach.

Providing guidance to the ERA in the WEM Rules. Section 3.4 of this Consultation Paper	EPWA has identified three broad options on the level of prescription that might be provided to the ERA in the WEM Rules in relation to the Market Power Test. EPWA considers that a balanced approach should be adopted as this is most likely to meet the Guiding Principles associated with certainty, regulatory effort and market efficiency. Under this approach, the WEM Rules would prescribe: • the core structural elements for each stage of the Market Power Test; • the objectives that the relevant assessment carried out by the ERA under each stage of the Market Power Test should seek to achieve; • that the ERA must publish guidance outlining assessment considerations for the Market Power Test based upon the assessment objectives in the WEM Rules; and • that the ERA must develop and publish a WEM Procedure setting out the processes it will undertake in conducting the Market Power Test.

Energy and FCESS Price Limits

EPWA has also considered options for setting energy and FCESS price limits as a backstop mechanism in the MPM Framework. The Taskforce's Information Paper noted that the objectives for the price limits are to allow participants to recover their efficient costs, while also reducing the effort and frequency associated with price limit adjustment.

EPWA has analysed several options for setting the price caps for the energy and FCESS markets, including continuing existing arrangements, and setting the cap in each market well above expected operating costs of the most expensive resource. EPWA has also considered case studies, where appropriate, to understand the potential implications of its preferred option for the FCESS market.

EPWA's initial views on the cap and floor for energy and FCESS markets are provided in the table below.

Table 2: EPWA's initial view on suitable options for the energy and FCESS price limits

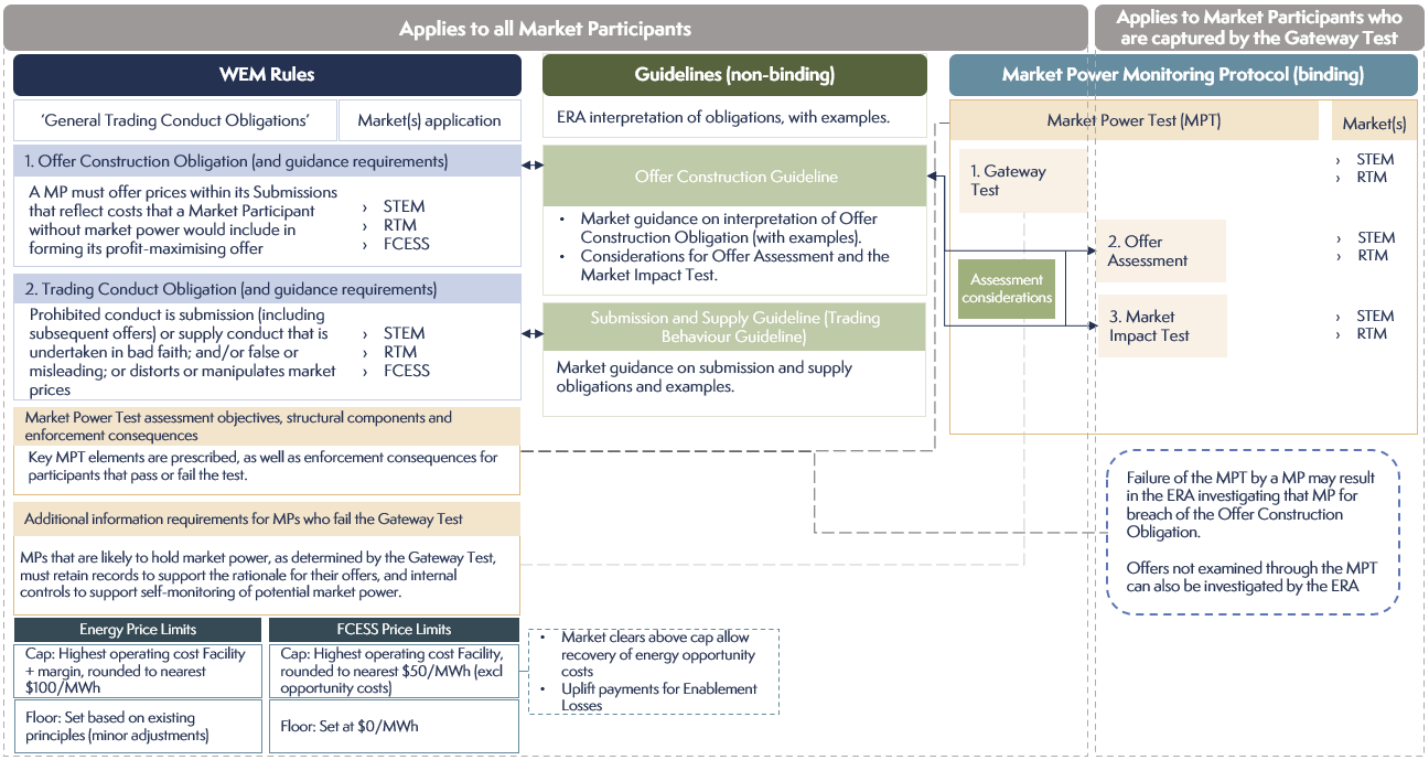
Market	EPWA's Initial View
Energy Price Limits Section 3.5.2 of this Consultation Paper.	EPWA considers that a single **energy price cap**, set at the highest reasonable operating cost plus a margin, rounded up to the nearest $100/MWh should be adopted. EPWA's initial view is that a single cost-based energy price cap is most likely to meet the efficiency requirements of the Guiding Principles, and will allow for reduced regulatory effort relative to the current price setting arrangements.
	EPWA's initial view is that the **energy price floor** should be determined on a three-yearly basis, according to the processes and principles set out in section 6.20 of the WEM Rules (with minor changes as necessary). EPWA considers this approach is unlikely to constrain the recovery of efficient costs given the rarity of price floor events, and will reduce regulatory effort.

FCESS Price Limits Section 3.5.4 of this Consultation Paper.	EPWA's initial view is that the **FCESS price cap** should be set at the highest reasonable cost of FCESS provision (excluding opportunity costs) plus a margin, rounded up. EPWA considers that the clearing price in the FCESS market should be allowed to exceed the FCESS price cap to allow compensation of opportunity costs. In addition, a FCESS Uplift Payment should be available to compensate Enablement Losses in appropriate circumstances. EPWA considers this approach will provide appropriate protection against extraction of abnormal profits by Market Participants, while allowing for recovery of efficient costs.
	EPWA's initial view is that the **FCESS Price floor** should remain at $0/MWh, consistent with existing arrangements. EPWA considers that this approach is unlikely to constrain the recovery of efficient costs, and minimises regulatory effort by fixing the price floor in the WEM Rules.

Proposed Design

EPWA has incorporated its initial views on relevant components discussed above into a revised Proposed Design for the MPM Framework. Section 4 of this Paper sets out this design in detail. Figure 1 below provides a summary of key elements of proposed arrangements.

Figure 1: Illustration of Proposed Design for the MPM Framework



Quantitative and qualitative analysis considered by EPWA

In developing its views on the above matters, EPWA has undertaken quantitative and qualitative analysis to understand the impacts of particular options and settings on the market.

- EPWA has undertaken qualitative analysis on the potential financial implications of the proposed MPM Framework. In particular, EPWA has considered whether the settings of the Proposed Design set out in Section 4 would impede the ability for Market Participants to recovery their fixed and variable costs in the relevant markets. EPWA considers that Market Participants are likely to benefit from the proposed changes as compared to existing arrangements and, at the very least, will be no worse off. This analysis is provided in Appendix C of this Paper.
- EPWA has undertaken quantitative analysis to identify the number of Portfolios that are likely to be caught under different options for the Gateway Test under Stage 1 of the Market Power Test. Analysis of these options is contained in Section 3.1 of this Paper, with further results set out in Appendix D.
- EPWA has also conducted analysis to understand the implications of its proposed option for setting the FCESS price limits. It has done so through the use of a number of case studies to examine the outcomes of this option through a dispatch cycle under various market conditions. A discussion of the results of these case studies, and details of these, are contained in Section 3.5.43.5.4 and Appendix B of this Paper respectively.

2. Introduction

2.1 The case for change

The South West Interconnected System is experiencing a major and rapid transformation due to changes to the mix of grid-connected large-scale generation technologies, consumer demand patterns, and growth in the penetration of Distributed Energy Resources (DER), including solar PV and storage.

The need to balance demand and supply in real time gives rise to potential market power abuse in virtually all developed electricity markets. MPM is therefore a core element of every energy market design. An effective MPM regime should protect customers from Market Participants extracting abnormal profits while supporting investment by allowing recovery of legitimate efficient costs.

The WEM is a highly concentrated market, with a handful of large suppliers and purchasers, and market power is likely to be present in the WEM on a consistent and ongoing basis. As a result, competitive forces between Market Participants cannot be solely relied upon to deliver efficient market outcomes at all times. An effective suite of MPM measures remains necessary.

The ongoing transformation of the energy sector and the rapid penetration of very low marginal cost resources in the energy market requires a carefully calibrated MPM framework that does not constrain the recovery of efficient costs by providers, while protecting consumers from the extraction of abnormal profits by Market Participants with market power.

The existing MPM mechanism in the WEM is largely reactive, based on ex-post investigations into the exercise of market power and compliance with Short Run Marginal Cost (SRMC) offer rules. The Taskforce considered the existing regime to have a number of deficiencies, in particular that it does not provide Market Participants and potential investors with sufficient clarity and guidance on what is acceptable conduct.

The current lack of guidance on what is acceptable bidding behaviour has given rise to uncertainty around what costs should be legitimately recoverable under the SRMC bidding requirement and there appears to be general support for more guidance on offer construction. It is likely that the current approach will be increasingly tested by the transformation, with increasing penetration of low marginal cost generation in the energy market and consequent need for a variety of essential energy services to support the security of the power system.

Further, ex-post investigation of potential breaches has proven to be:

- expensive and time-consuming,
- requires the regulator to prove malicious intent on the part of the Market Participant (which can be difficult); and
- does not remedy adverse market outcomes in a timely manner; and adds to regulatory uncertainty.

The limited guidance on how the regulator will detect the exercise of market power ex-post may also discourage efficient competitive market activity in real-time.

2.2 Energy Transformation Strategy

Under Stage 1 of the Strategy, the Taskforce implemented a number of significant reforms to the WEM to address current and emerging power system security risks and provide appropriate market incentives. The new WEM design includes the following major components:

- Establishment of ESS markets
- 5-minute dispatch intervals
- Move to a zero gate closure period

- Security constrained economic dispatch
- Synergy facility bidding
- Co-optimisation between energy and ESS
- Retention of the STEM
- Abolition of constrained-off payments
- Enhancement of the registration framework to remove entry barriers to new technologies and to increase flexibility
- Changes to the Reserve Capacity Mechanism to recognise network constraints in the capacity credit allocation process with the introduction of a Network Access Quantity regime to promote investment certainty and provide location signals for new entrant capacity
- Establishment of a Supplementary Essential System Services Mechanism (SESSM) which can be triggered and overseen by the ERA if it observes and determines there has been inefficient market outcomes in any of the ESS real time markets.

Given these very fundamental changes to the market design and arrangements the Taskforce undertook a holistic assessment of appropriate MPM mechanisms in the new WEM and determined change was required. As highlighted above, the Taskforce endorsed the following Guiding Principles to inform the development of more a suitable MPM mechanism.

The Taskforce determined that the MPM framework should:
• be calibrated to ensure it doesn't constrain the recovery of efficient costs by energy producers while protecting consumers from the extraction of abnormal profits by Market Participants with market power
• provide ex-ante regulatory certainty to promote efficient market operation while reducing the need for ex-post investigation and litigation processes
• ensure the regulatory effort is proportionate to the cost and the risk being managed so that benefits of improved competition outweigh the regulatory costs
• recognise the need for ongoing review to ensure the mechanisms remain balanced and responsive to changing power system conditions and market dynamics and do not overly constrain efficient market conduct

To advance consideration and development of an alternative MPM mechanism, the Taskforce published an initial Consultation Paper on 31 March 2021 outlining a proposed high-level design of MPM mechanisms in the WEM, and invited stakeholder submissions on that design.[1]

The Proposed Design took into account the major changes to the WEM design and sought to address known deficiencies in the existing framework. Responses to the Consultation Paper presented a mixed response to the proposed high-level design.

The Taskforce published an Information Paper on 21 May 2021 that, taking account of stakeholder submissions, reaffirmed certain components of the high-level design proposed in the Consultation Paper, while recommending that further analysis of other components (unconfirmed components) be undertaken by EPWA.[2]

[1] Proposal for changes to Market Power Mitigation mechanisms, March 2021.

[2] Information Paper: Improvements to Market Power Mitigation Mechanism, May 2021.

Taskforce determinations made in response to stakeholder submissions on the initial Consultation Paper	
Component of the Proposed Regime	**Rationale**
To be reaffirmed by the Taskforce	
Reduce reliance on ex-post investigations	Aimed at improving regulatory certainty, is consistent with best practice regulation and to address some of the disadvantages of lengthy and costly ex-post investigations.
Remove reference to SRMC from the rules	There have been repeated calls by participants to define SRMC, which is one of the key MPM requirements in the rules. The present SRMC offer rules will be replaced with a requirement to make offers consistent with those that the participant would have made in the absence of market power.
Trading conduct obligations for Market Participants and providing guidance on what constitutes unacceptable exercise of market power	It is proposed to define unacceptable trading conduct as that which raises prices (and margins) above levels that would have arisen in the absence of market power being exercised. It will apply to both predatory pricing (pricing below cost) as well as prices that exceed efficient costs. The aim is to provide guidance on what constitutes unacceptable exercise of market power. The ERA will be required to release materials providing this guidance similar to that provided by the ACCC and the AER
Provide participants with an opportunity to engage with the Regulator to ensure their conduct is compliant	There were no strong objections to this part of the proposal. This does not relate to the costs which a participant may include in their offers, but to their trading conduct in certain circumstances which may not be covered by the ERA guidelines. Participants will be able to approach the ERA for clarification and the ERA would be required to respond to such requests and amend its published Trading Conduct Guidelines accordingly.
Introduce an objective test to establish whether a participant is in a position to exercise market power	The principle behind this test would be to adequately balance the interest of consumers with the legitimate right of participants to recover their efficient costs. The specific test is to be determined through further evaluation, as indicated below.
Additional obligations on participants who pass the objective Market Power Test	Only those participants who pass the test should be required to implement addition processes and systems (including internal governance arrangements for trading conduct compliance monitoring and records keeping on changes to offer prices and quantities) to ensure compliance with their trading obligations.
Set energy and ESS price limits	The objective is that price limits are high enough so that all participants can recover their efficient variable costs and the process for setting them employs a mechanism that reduces the effort and frequency of adjustment. This would involve EPWA redesigning the current rules to provide for this.
To be subjected to further analysis and consultation	
The suitability of the proposed three-part market	All submissions expressed concern over the design of the proposed PST and sought to input into the detailed design of the PST. The further analysis and consultation will need to include consideration

power test as an objective measure of market power	of what guidance needs to be provided by the ERA in a Market Surveillance Protocol regarding the application of an effects test.
Identify a 'safe trading' envelope, including Offer Construction Guidelines	Under the Taskforce proposal this would combine trading conduct obligations in the WEM Rules together with ex-ante offer construction guidelines and trading conduct guidelines, provided by the ERA. There were concerns that the Offer Construction Guidelines would be more prescriptive and restrictive than the current SRMC rule. Further analysis and consultation need to be undertaken to determine the level of prescription required in the WEM Rules and the Offer Construction Guideline and establish the practicality and workability of this part of the Taskforce proposals.
Pre-approval of some offer parameters	Including, for example, internal MPM controls or fuel costs. There are concerns whether any discussions with the ERA would quickly reach an impasse and the practically of this measure needs to be examined further. This would include whether this component of the design is required (at least initially). Further consultation with stakeholders needs to be undertaken to establish whether it would be beneficial to participants.
Providing guidance to the ERA in the WEM Rules	Most submissions recommended that the rules implementing the MPM mechanism should give guidance to decisions by the ERA in developing and applying the new arrangements. However, fettering the discretion of the independent economic regulator will need to be carefully considered.

In May 2021, the tenure of the Taskforce concluded, and EPWA was tasked with continuing the development and implementation of outstanding reforms, including an appropriate MPM mechanism in the new WEM.

2.3 Scope

The purpose of this Consultation Paper is to provide the analysis EPWA has undertaken in its assessment of the unconfirmed components of the MPM Framework against the Guiding Principles. EPWA has engaged consultants, Rennie Partners, to provide support to EPWA in its analysis of these matters.

Where required by the Taskforce, EPWA has considered a number of suitable options for unconfirmed components. It has assessed options against each of the Guiding Principles before coming to a view on which of the options is, on balance, most likely to be meet all Guiding Principles as compared to the other choices. This options analysis is provided in Section 3.

EPWA has incorporated what it considers to be the most suitable options for unconfirmed components with the uncontroversial elements of the framework into a revised Proposed Design. This is set out in Section 4.

The Project Scope is provided in Appendix A.

2.4 Stakeholder Consultation

Industry feedback is invited on the Proposed Design of the MPM Strategy, as outlined in this Consultation Paper. **The consultation period closes at 5:00pm WST on Monday 29 August 2022.** Late submissions may not be considered.

Submissions can be emailed to energymarkets@dmirs.wa.gov.au.

Any submissions received will be made publicly available on www.energy.wa.gov.au, unless requested otherwise.

2.5 Next Steps

EPWA will consider submissions made on this Consultation Paper before releasing an Information Paper in September 2022 outlining the final detailed design that will form the basis of the Amending WEM Rules.

The Amending WEM Rules will also be released by EPWA for further consultation in late 2022.

The Amending Rules are scheduled to be approved by the Minister for Energy by the end of 2022 to allow the ERA and Market Participants to prepare for the new MPM arrangements. The Amending Rules will commence at the start of the new Market on 1 October 2023 (or an earlier date as transitional arrangements may require).

3. Analysis of Unconfirmed Elements

This section summarises the options considered by EPWA in conducting further analysis of the following unconfirmed elements of the MPM framework identified by the Taskforce:

- Unconfirmed element (a): Market Power Test
- Unconfirmed element (b): Offer Construction Guideline
- Unconfirmed element (c): Pre-approval of offer parameters
- Unconfirmed element (d): Level of guidance to be provided to the ERA
- Unconfirmed element (e): Energy and ESS Price Limits

Each option has been assessed against the Guiding Principles and EPWA has identified a recommended option for each unconfirmed element. Stakeholders are asked to provide feedback on the recommended options which, together with the confirmed elements, will form the basis of the detailed design of the MPM Framework.

3.1 Unconfirmed element (a): Market Power Test

Context and Overview

The Taskforce previously proposed the introduction of a three-part Market Power Test to ensure that MPM obligations and market power surveillance principally focus on Market Participants that meet a defined threshold.

EPWA has determined that a three-part Market Power Test continues to be most suitable for the WEM, based on the level of ex-ante certainty it can provide, its ability to allow regulatory and administrative efficiency, and its capacity to provide the ERA with effective, transparent tools for the implementation of the MPM regime.

Concerns raised in previous stakeholder submissions were largely focussed on the first stage of the proposed test (the pivotal supplier test), rather than the overall need for a three-part Market Power Test. Alternatives to the three-part test, including continuing the current ex-post regime or adjusting offers based on reference prices, do not meet the Guiding Principles and will not be examined in this Consultation Paper.

In its Information Paper, the Taskforce reaffirmed the need for an objective test to identify participants with the capacity to exercise market power, but acknowledged that issues raised in relation to the proposed pivotal supplier test warranted further review and analysis.[3] In particular, there were questions on how the test would be applied in practice and concern that only Synergy would be captured, while other participants with the capacity to exercise market power may be missed by the test.[4]

This subsection therefore focuses on an analysis of options for Stage 1 of the Market Power Test – which EPWA has renamed from the "pivotal supplier test" to the "**Gateway Test**".

3.1.2 Key elements and summary

It is proposed that a Gateway Test (Stage 1) be used as an initial objective structural screen to identify whether a Portfolio owned by a single entity (or related entities) is in a position to exercise

[3] Energy Transformation Taskforce, Improvements to Market Power Mitigation Mechanism, 21 May 2021, p 8

[4] Synergy, Submission on Proposals for changes to Market Power Mitigation Mechanisms Consultation Paper, 30 April 2021; Perth Energy/AGL, Submission on Proposals for changes to Market Power Mitigation Mechanisms Consultation Paper, 29 April 2021

market power. The Gateway Test should be capable of identifying all relevant Portfolios with market power over the same period.

The proposed Gateway Test is intended to identify the presence of market power in the STEM and RTM only. Arrangements for the FCESS markets are considered below, and in more detail in Section 3.5.4.

Where a Portfolio is 'caught' under the Gateway Test, the proposed arrangements would have two consequences:

- the offers made at the time the Market Participant(s) is identified as holding market power will be assessed under Stage 2 (and, potentially, Stage 3) of the Market Power Test; and
- Market Participant(s) associated with the relevant Portfolio will be required to implement additional processes and systems (including internal governance arrangements for trading conduct compliance monitoring and enhanced record keeping on changes to offer prices and quantities) to ensure compliance with their trading obligations.

The Gateway Test should be conducted ex-ante to provide certainty to Market Participants associated with relevant Portfolios that they are likely to hold market power in a future period. Under some circumstances, it may be appropriate for the Gateway Test to be run on an ex-post basis against actual market outcomes.

Options considered – Gateway Tests

EPWA conducted a review of options for an objective Gateway Test based on a selection of Market Power Tests currently employed in other energy markets and other industry sectors.

Options identified and considered further against Guiding Principles below:

- **Pivotal Supplier Tests (PSTs)** – These test whether demand can be met without a Portfolio in operation. The most common implementation is a Three-PST, currently used to assess market power in many US energy markets, including the PJM and Californian (CAISO) markets.[5] However, some US energy markets, including the New England (NE-ISO) and Midwest (MISO), apply a single PST.[6] EPWA has assessed both single and multiple PSTs for implementation in the WEM.
- **Concentration Ratios (CRs) –** This assessment method tests the percentage of total market capacity or supply that is held by one participant, or several participants together, to assess the competitiveness of the market, based on the market share of participants. Some energy markets (e.g. Texas (ERCOT)) use CRs to place an upper bound on total allowed market concentration and a materiality threshold below which a supplier is not considered to hold market power.[7] EPWA has assessed both dynamic and static variations of single supplier concentration ratios for implementation in the WEM.

[5] See PJM Open Access Transmission Tariff (February 2022), Attachment K, section 3.2 https://pjm.com/directory/merged-tariffs/oatt.pdf; CAISO Open Access Transmission Tariff (17 June 2022), http://www.caiso.com/Documents/Conformed-Tariff-as-of-Jun17-2022.pdf; CAISO, Analysis of Structural System-Level Competitiveness in the CAISO Balancing Authority Area, 29 April 2019; Brattle Group - Review of PJM's Market Power Mitigation Practices in Comparison to Other Organised Electricity Markets (2007).

[6] See New England ISO, Tariff (27 August 2022), Market Rule 1: Appendix A, Market Monitoring, Reporting and Market Power Mitigation- https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_3/mr1_append_a.pdf; MISO Tariff Module D: Market Monitoring and Mitigation Measures, 7 May 2022 - https://www.misoenergy.org/legal/business-practice-manuals/;Christoph Graf et al. Market Power Mitigation Mechanisms for Wholesale Electricity Markets: Status Quo and Challenges, 20 June 2021.

[7] ERCOT, Public Utilities Commission Rules, (3 April 2021), Chapter 25; Christoph Graf et al. – Market Power Mitigation Mechanisms for Wholesale Electricity Markets: Status Quo and Challenges, 20 June 2021.

Options identified, but not considered further are:

- **Market-based Concentration Screens** – These are tests which assess the overall competitive performance of a market (including multiple supplier concentration ratios and the Herfindahl-Hirschman Index used in some US and European markets).[8] For example, the ACCC, in assessing proposed mergers, typically takes account of market shares, concentration ratios, and the Herfindahl-Hirschman Index.[9] Analysis has been undertaken on structural screens for individual suppliers only, as it was not considered that testing the overall market under market concentration methods would provide a true indication of an individual participant's ability to exercise market power in the WEM.
- **Simulations** – Simulating market outcomes was not considered in this analysis as it would rely on subjective inputs to a market model, and is generally considered more useful in establishing regulator-determined reference prices (as in the Texas electricity market).[10]
- **Residual Supplier Index (RSI)** – This tests the proportion of demand supplied by all but the largest supplier to determine if the largest supplier holds market power, and was developed by the CAISO. Ultimately, a RSI gives the same or similar result as a single PST.[11]

EPWA notes that the structural screens adopted in various markets have different applications. In the PJM, Midwest, California and Texas markets, MPM measures (e.g. substitution with reference prices) are applied based on the structural screen alone. In the New England and New York markets, the structural screen is the 'gateway' to further conduct and impact assessments.[12] It is important that potential Gateway Tests are considered within the WEM context, and that the prevailing complexity and regulatory oversight needed to deploy certain structural screening tests is assessed.

The Level at which the Gateway Test should apply

EPWA has considered whether the Gateway Test should be conducted at:

- a single Facility level;
- on the Facilities registered by individual Market Participants; or
- at the Portfolio level taking into account all Facilities owned by an entity or related entities.

EPWA's initial view is the Gateway Test should be run at the Portfolio level given this approach will allow for the assessment of offers that are likely to be coordinated under a single ownership structure, regardless of whether the relevant Facilities are registered by one or more Market Participants. Further, EPWA considers that this approach will mitigate potential issues with entities registering Facilities under different Market Participants to avoid scrutiny under the framework.

Testing for market power behind binding constraints and level of ownership

Consideration has also been given to the ability of a Portfolio to exercise market power behind binding Network Constraints. This is because a single, relatively small Portfolio (or a subset of a larger Portfolio) would not be captured under many gateway test methods, yet might be able to exercise "local" market power where it is required to operate to meet demand behind a constraint.

[8] Christoph Graf et al. – Market Power Mitigation Mechanisms for Wholesale Electricity Markets: Status Quo and Challenges, 20 June 2021; The Brattle Group - Review of PJM's Market Power Mitigation Practices in Comparison to Other Organised Electricity Markets, 2007

[9] See the ACCC's Merger Guidelines, with explanations of the competition test from 3.1, and the market concentration tests from 7.9 - https://www.accc.gov.au/system/files/Merger%20guidelines%20-%20Final.PDF

[10] See HoustonKemp – International Review of Market Power Mitigation Measures in Electricity Markets, May 2018, pp 14,15

[11] David Newberry Predicting Market Power in Wholesale Electricity Markets, January 2008

[12] The Brattle Group - Review of PJM's Market Power Mitigation Practices in Comparison to Other Organised Electricity Markets, 2007.

In order to address this, EPWA proposes that a separate Gateway Test be run in the Real-Time Market (RTM) behind Network Constraints to identify whether the offers made in respect of relevant Facilities in such conditions should be subject to further assessment under subsequent stages of the Market Power Test.

EPWA proposes that the ERA runs an ex-post assessment of Portfolios operating behind binding Network Constraints. If Energy Uplift Payments have been made in respect of a Portfolio's Facilities in excess of 10% of Dispatch Intervals when the relevant constraint was binding, the offers made for those Facilities at that time would be subject to further assessment under Stage 2 of the Market Power Test. This test is described in more detail in Section 4.3.

Proposed application to the FCESS market

It is proposed that MPM for the FCESS market relies on the SESSM process provided for under the new WEM Rules, in combination with the General Trading Obligations that will apply to all Market Participants. It is not proposed that the Gateway Test, or other components of the Market Power Test, be applied to the FCESS market. This will avoid duplication in regulatory effort while also ensuring that the ERA can bring appropriate enforcement action against individual Market Participants.

To enhance ex-ante certainty for the relevant Market Participants, it would also be desirable for the ERA to publish its internal pricing benchmarks for FCESS markets which, when approached or exceeded, would trigger the SESSM.

This is consistent with the view of the Taskforce in its May 2021 Information Paper:

> *"In respect of ESS, the ability for the ERA to trigger SESSM should act to deter manipulation of ESS offers. The Taskforce agrees that there is benefit in market discovery of efficient ESS prices and considers that Energy Policy WA should consider further the appropriateness of the ERA to publish its internal pricing benchmarks, which once approached or exceeded would prompt the ERA to require AEMO to trigger the SESSM process. This information would be useful to provide additional transparency and certainty to participants, but where such benchmarks may be uninformed by market outcomes this measure if introduced too early in the new ESS markets does invite inadvertent regulatory error."*[13]

SESSM arrangements are described in further detail in Section 4.3.3.

3.1.3 Options Analysis

This subsection presents a summary of the analysis of three options for the Gateway Test that were identified as potentially suitable when applied to the specific circumstances of the WEM.

Option 1: Concentration Ratios

CRs measure the competitiveness of a market and the ability of a Portfolio to influence the market outcomes based purely on share of overall capacity or supply. CR methodologies can be based on static or dynamic measures:

- Static measures – asses a portfolio as a percentage of the total capacity or supply in the market, based on total market MW or MWh at the point when the test is run. This calculation method provides for the test to be undertaken at relatively long, set periods.
- Dynamic measures – undertake assessment of market share at more regular intervals (potentially day-ahead or real-time) to identify the Portfolio as a percentage of the total available supply in the market at that point in time.

[13] See Improvements to Market Power Mitigation Mechanism: Information Paper, 21 May 2021

The table below provides a description of CR methodologies and an assessment against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• Under both static and dynamic CRs, a market share threshold is set, above which a supplier is deemed to hold substantial market power (e.g. one-sixth or one-tenth of the market). **Static threshold** • Based on WEM 2021 Balancing Market data, if a static threshold of 10% is applied, three Portfolios (of sizes greater than 600MW), and approximately 77% of the capacity within the WEM are captured by the test.[14] • If a static threshold of 5% is applied, this is expected to capture four Portfolios, and approximately 83% of capacity in the system. • At a level of 15%, the test will capture two Portfolios in the WEM.[15] **Dynamic threshold** • If a threshold of 10% of the dynamic available supply for Trading Intervals is used, this would pick up three portfolios in approximately 98% of Trading Intervals. • If the dynamic supply threshold is increased to 20%, one portfolio is caught at all times, with a second caught in 9% of Trading Intervals. See Appendix D for further information. **General** • The threshold could be refined over time or to reflect changing market conditions, although such changes should not happen frequently to provide certainty to participants.	• CRs allow for the setting of a threshold to enable further assessment of suppliers in the market that are most likely to have the capacity to exercise market power. This is consistent with a test that enables the protection of consumers from extraction of substantial abnormal profits by suppliers in most instances. • CRs would not constrain the recovery of efficient costs by suppliers in itself, as it is simply a mechanism to assess whether the Portfolio should be subject to further assessment under the Market Power Test. *Principle 2: Ex-ante certainty; reduced investigation and litigation* • Static CRs provide suppliers with significant ex-ante certainty by providing a simple and stable Gateway Test that is quickly and easily administered. • Dynamic versions of the test may introduce some uncertainty for Market Participants given this would require analysis of actual market conditions, either through day-ahead, real time, or ex-post assessment. • The use of CRs for a Gateway Test in the context of a broader Market Power Test is consistent with facilitating more targeted ex-post investigation. *Principle 3: Proportionality of competition benefits to regulatory effort and costs* • A static form of the test can be easily administered (while still representing an objective measure of the presence of market power) and can run on a stable, periodic basis, without the need for dynamic RTM analysis. • Application of the static test could be aligned with existing processes (e.g. following the reserve capacity testing in the RCM). • A dynamic CR test may provide a more accurate reflection of RTM conditions (as demand and other conditions are taken into account), but is expected to impose greater regulatory effort and cost, while potentially reducing certainty and associated competition benefits.

[14] Analysis based on Balancing Market 2021 data. See Appendix D for analysis

[15] Analysis based on Balancing Market 2021 data. See Appendix D for analysis

• The presence of market power behind binding constraints is likely to require assessment using an alternative CR threshold to that employed in the broader market, or by using a distinct threshold, or under a separate methodology.[16]	• All forms of CRs offer simplicity but, depending on the threshold, may capture more suppliers relative to other gateway tests (for example, a Single PST). While this may be appropriate, it may add to the administrative burden on the ERA and affected participants. This may also impose a higher assessment burden on the ERA for the subsequent stages of the Market Power Test relative to other forms of Gateway Tests. • There is likely to be the need for ongoing analysis and review of CR thresholds, but the regulatory effort associated with this is likely to be similar or lower compared to other Gateway Test options.
	Principle 4: Suitable for ongoing review to account for a changing market
	• The supply threshold under a Static or Dynamic CR could be easily amended to account for changes to market conditions. Quantifying outcomes, in terms of the number of Facilities and Intervals caught under the Gateway Test, is likely to be easiest under a Static CR approach as it would not rely on dynamic market outcomes. • A periodic review of the threshold could be embedded into the Coordinator of Energy's market monitoring functions, however frequent reviews may increase uncertainty for participants

Option 2: Single Pivotal Supplier Test (PST)

A Single PST would test whether Facilities within a Portfolio are required to be in service to meet demand in the market at any given time. The table below provides a description of a Single PST, as considered by the Taskforce, and an assessment against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• A Portfolio is considered a pivotal supplier (PS) if the combined capacity of the Facilities within the Portfolio is larger than the total excess generation available in the market in a set of consecutive intervals.[17] • Under this option, only one pivotal supplier needs to exist for the Gateway Test to be triggered,	• Quantitative analysis of market outcomes in the WEM shows that the Single PST captures instances of market power the least, and captures only Synergy in the majority of instances, compared to the other Gateway Test options considered. • This may limit its suitability for the WEM by overly focusing the ERA's assessment under the Market Power Test on only one Portfolio, while ignoring the activities of other major suppliers that may still influence market outcomes. • As with all options, a Single PST alone does not constrain the recovery of efficient costs by suppliers as it is simply a

[16] CRs with a low pre-set threshold are unlikely to be suitable for ex-ante assessment behind binding constraints. The threshold would need to be tailored for each constraint as the share of supply held by suppliers behind each constraint will vary. This adds significant complexity and potential subjectivity to the assessment of market power behind and has not been considered further.

[17] Number of intervals to be determined. Portfolio materiality threshold may apply.

however more than one PS can exist in the same interval. • The Single PST could be run across the STEM and RTM and behind known binding constraints. • A potential PS can be provided forward notice based on a quarterly forecast (ex-ante) PST run on forecast market outcomes. • Actual PS are identified via actual market outcomes, potentially through ex-post analysis. • Based on WEM 2021 Balancing Market data, the largest Portfolio (Synergy) would have been a PS in 19.2% of individual Trading Intervals (i.e. if the threshold for consecutive Trading Intervals was set at 1) • Other Portfolios were only caught in rare instances.18	mechanism to assess whether a Portfolio will have, or has held, market power. *Principle 2: Ex-ante certainty; reduced investigation and litigation* • A Single PST provides Market Participants with a greater degree of ex-ante certainty than under the current regime through notification that they are likely to hold market power. However, Portfolios captured as a PS in the forward notice period may not be a PS in dispatch, and vice-versa. ○ This will reduce the certainty Market Participants will have regarding when further assessment of offers will take place and when additional obligations may apply. • The use of a Single PST in the context of a broader Market Power Test is consistent with conducting an initial screen of market power to facilitate more targeted ex-post investigation. *Principle 3: Proportionality of competition benefits to regulatory effort and costs* • To avoid unnecessary regulatory effort to run the PST in real-time, the Single PST could be automated ex-ante and run in batches ex-post. This is still likely to impose some regulatory effort and additional cost on the ERA compared to current arrangements and other options. ○ It would also require additional market forecasting processes to be implemented to provide ex-ante notice to Market Participants. As noted under Principle 1, this form of the test may limit the number of Portfolios with market power assessed under the next two stages of the Market Power Test, potentially reducing the competition benefits of the framework. *Principle 4: Suitable for ongoing review to account for a changing market* • Modifying the Single PST could be most easily achieved through amending the number of consecutive Trading Intervals to trigger a positive result in the test. • However, such an approach would need to consider whether the proposed narrowing or expansion of consecutive trading intervals would identify 'substantial' or 'sustained' market power. • A periodic review of the appropriateness of the threshold could be conducted as part of the Coordinator of Energy's assessment of WEM effectiveness.

[18] See Appendix D for analysis.

Option 3: Alternative Pivotal Supplier Tests (Two-PST and Three-PST)

An alternative to the Single PST is to use a Two or Three PST to identify whether, with the removal of the capacity of two or three Portfolios from the market (or from behind a constraint), supply would fail to meet demand for a pre-determined number of consecutive Trading Intervals.

The table below provides a description of the alternative PSTs and assesses both types against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• A Two-PST identifies whether any Portfolio, in combination with the next largest Portfolio, is required to be in service to meet demand in the market, or behind a constraint for a number of consecutive intervals. • A Three-PST is based on the same test, except it considers whether the Portfolio is needed in combination with the two largest other suppliers. • The Portfolios – whether 2 or 3 – are then 'caught' by this stage of the Market Power Test, with their offers made at the time they were 'pivotal' ○ (i.e. during the consecutive Trading Intervals) subject to assessment under the next two stages of the Market Power Test. • A materiality threshold based on market share (e.g. >10%) or a MW portfolio minimum threshold (e.g. 100MW) could also be added to the criteria to exclude smaller Portfolios.[19] • The application of a consecutive interval threshold and/or a materiality threshold will decrease the number of Portfolios that may be captured through the test.	• The Two or Three-PST are more capable of capturing transient market power as compared to a Single-PST (i.e. where a smaller supplier may hold market power over a limited time frame) and so may offer greater consumer protections as compared to the Single-PST.
	Principle 2: Ex-ante certainty; reduced investigation and litigation
	• Like the Single PST, a Two-PST or Three-PST should provide suppliers with a greater degree of an ex-ante certainty than under the current regime. However, the same issues that arise under the Single PST are present under this form of test, in that Market Participants may be uncertain as to when they will be caught by the test based on actual market outcomes. • The use of a Gateway Test in the context of a broader Market Power Test is consistent with facilitating more targeted ex-post investigation.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Alignment with this principle is largely the same as under option 2.
	Principle 4: Suitable for ongoing review to account for a changing market
	• Alignment with this principle is largely the same as under option 2

[19] Analysis shows that a three-PST for any supplier in the WEM would capture any other supplier in combination with the top two suppliers in at least 76% of intervals in the 2021 Balancing Market and that there would be a pivotal supplier in 99% of intervals. See Appendix D for analysis.

3.1.4 Summary of analysis against the Guiding Principles

Principle 1: Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power

Quantitative analysis indicates that both CRs and the Two and Three PST (with appropriate threshold settings) would identify a number of major Portfolios in the WEM for further assessment under the Market Power Test. Adopting a Single PST, however, may result in only one Portfolio being identified for further assessment by the ERA under the next two stages of the Market Power Test. This would create the risk that the conduct of other relevant Market Participants is ignored, potentially reducing the consumer protections provided under the framework.

It should be highlighted that none of the options considered have the capacity by themselves to jeopardise efficient recovery of costs by producers. The purpose of the Gateway Test is simply to assess whether a Portfolio should be subject to further assessment under the remaining two stages of the Market Power Test.

Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation

All of the options examined for the Gateway Test would provide a greater degree of ex-ante certainty for Market Participants in comparison to existing arrangements. Each of the options would also reduce reliance on ex-post investigation and litigation.

Analysis indicates that when compared to the other options, the Static CR method is likely to provide the most robust level of certainty. This is because it can be conducted periodically, at relatively large intervals, to provide forward notice of status to Market Participants without the need for an ex-post 'true up' based on actual market outcomes.

This avoids the risk that Portfolios are captured by the Gateway Test in the forward notice process, but are not *actually* caught by the Gateway Test in the day-ahead or dispatch outcomes (and vice-versa). EPWA notes this risk exists under the Dynamic CR and all PST methods.

Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs

All options considered are unlikely to impose significant regulatory effort or cost on the ERA or Market Participants. The Static CR method is likely to be the least difficult to implement and easiest to align with existing processes. Even the most complex of the options considered – the Three PST – is expected to be undertaken on an automated basis for the forward and ex-post assessments.

EPWA notes that a greater level of assessment will be required by the ERA under each of the options that would capture more Facilities. However, there is likely to be significant consumer protection benefits associated with not unreasonably narrowing the ERA's assessment scope.

Options that provide ex-ante notice to suppliers are more likely to meet Principle 3 as they allow for increased competition benefits through a greater level of certainty.

Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions

All options considered could be subject to periodic review by the Coordinator of Energy under its market effectiveness functions.

Both CRs and the PST methods provide some avenue for expeditious amendment in the event that the option adopted was considered to be overly onerous or ineffective following a review. On balance, CR methods are likely to be slightly easier to review and amend owing to the simplicity of the method. However, frequent changes to whatever Gateway test is eventually adopted would need to be avoided, to maintain certainty for Market Participants.

Options	Guiding Principle 1	Guiding Principle 2	Guiding Principle 3	Guiding Principle 4
1. Concentration Ratios	✓	✓	✓	✓
2. Single PST	✗	✗	–	–
3. Alternative PST	✓	✗	–	–

Table 3: analysis of Gateway Tests against Guiding Principles

3.1.5 Recommended Option

Option 1 – Static CR Method

EPWA considers that using a Static CR method for the Gateway Test is likely to provide the most certainty and associated competition benefits to the WEM, while ensuring that offers most likely to result in adverse market outcomes are subjected to further assessment by the ERA. The Static CR is likely to be simpler and more cost effective to administer in comparison to the other options, and would be more easily understood by stakeholders.

It is proposed that, based on the analysis of potential results presented above, a 10% share of total generation is a suitable threshold to trigger the Static CR Gateway Test when it is first implemented.

It is EPWA's view that the most appropriate implementation of the 10% Static CR is based on sent out MW, as it provides a simple, stable and proportionate ex-ante calculation methodology to determine a Portfolio's overall market share at a given point in time. The use of MWh was also considered, however this would be more appropriate for dynamic CRs or ex-post testing regimes that seek to interrogate actual market outcomes.

EPWA acknowledges that PST and Dynamic CR methods have the advantage of considering market conditions and potentially being applicable behind binding constraints. However, it does not consider that these methods would provide significant additional protections for consumers when compared to a Static CR approach, and may erode participant certainty and the associated competition benefits.

EPWA's view is also informed by quantitative analysis that shows that the number of Portfolio's that would be caught under the Two or Three PST (using a single consecutive Trading Interval threshold) and a Static CR based on 10% market share threshold would be broadly similar.[20]

In all options, the setting of methods can be reviewed periodically through existing or new processes, although the frequency of this needs to be considered against the objective to provide certainty to participants. EPWA notes that quantifying the impact of changes to methods is likely to be easiest under the Static Concentration Ratio method.

A more detailed process description of the proposed design for the Gateway Test is provided in Section 4.3.

[20] This is where the Two or Three Pivotal Supplier Test is run on the basis that the capacity of the relevant suppliers outstrips demand in only one 'consecutive' Trading Interval, Portfolios would be captured less often if the number of consecutive Trading Intervals required to trigger the test were higher.

Binding constraints

Where binding constraints apply, EPWA considers that the most appropriate methodology is for the ERA to make an ex-post assessment of whether Energy Uplift Payments have been made in respect of a Portfolio's Facilities behind that binding constraint in excess of 10% of Dispatch Intervals when the relevant constraint was binding. If so, the ERA can then make a determination as to whether or not to progress the Market Participant/s associated with the relevant Portfolio to subsequent stages of the Market Power Test.

FCESS Market

It is proposed that MPM for the FCESS markets rely on the SESSM process provided for under the new WEM Rules, in combination with the General Trading Obligations that will apply to all Market Participants. EPWA believes that utilising the SESSM process avoids duplication and provides the level of market efficiency, consumer protection and supplier certainty required.

Consultation Questions

1. Do stakeholders support the proposed approach for the Gateway Test?
2. If a Static CR is to be used, are there any reasons why a 10% generation capacity market share should not be adopted?
3. Do stakeholders support EPWA's position on the form of test to apply behind binding constraints and EPWA's proposals for the FCESS markets?

3.2 Unconfirmed element (b): Offer Construction Guideline

Market Participants that are identified through the Gateway Test under Stage 1 must progress through to Offer Assessment under Stage 2 of the Market Power Test. Stage 2 of the Market Power Test is proposed to involve the development of an 'Offer Construction Guideline' (or suitable alternative), which will provide guidance on how the ERA will undertake this assessment.

3.2.1 Key Elements and Summary

The intention of the Offer Assessment component of the Market Power Test is to identify prices in Submissions made for the STEM and RTM that are indicative of an exercise of market power, and so may warrant further investigation by the ERA for breach of the Offer Construction Obligation.

EPWA considers – consistent with the Guiding Principles – that where the prices offered by a Market Participant in a Submission(s) for a Facility appear to not reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer, the Market Participant should 'fail' the Offer Assessment element of the Market Power Test. Further assessment of the market impacts of relevant prices would then be carried out under Stage 3 of the Market Power Test.

Market Participants responsible for Facilities that are caught by the Gateway Test must fail all three stages of the Market Power Test before the ERA may commence compliance investigation and enforcement action for breach of the Offer Construction Obligation in respect of the Market Participant's relevant offers. Offers not subject to assessment through the Market Power Test (i.e. where a Portfolio is not caught by the Gateway Test) will still be subject to ERA monitoring and investigation through compliance activities associated with General Trading Obligations (See Section 4.2).

3.2.2 Options Analysis

The four options analysed by EPWA for this element of the Market Power Test explore methods for the ERA to identify prices in Submissions that appear to not reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer.

The methods examined do this in different ways: guidance-based assessment and cost-based reference ranges use the cost components underpinning prices as a basis to identify reasonable offers. Offer-based and price-based reference ranges - respectively - use historical prices in Submissions, and market prices from pre-determined periods, as a proxy for reasonable costs of production. Each of these options is considered in further detail below.

Option 1: Guidance-based assessment

Under Option 1, offer assessment by the ERA under Stage 2 of the Market Power Test would be conducted in the STEM and RTM on the basis of principles outlined in the WEM Rules, and further assessment guidance would be developed and published by the ERA.

The table below provides a description of guidance-based assessment and its assessment against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key components	*Principle 1: Efficient recovery of costs; protection of consumers*
• The ERA would assess whether the prices offered in Submissions made by a Market Participant for a relevant Facility during relevant Trading or Dispatch Intervals (identified through the Gateway Test) were consistent with the assessment requirements. • Matters the ERA would be required to provide guidance on would include: ○ start-up and shut-down costs; ○ the variable costs of the Facility (including the cost of fuel); ○ any other variable operation and maintenance costs; ○ any relevant regulatory costs or allowances; and ○ expected amortisation of relevant costs across intervals. • Market Participants would 'fail' the Offer Assessment of the Market Power Test where the ERA determined that prices offered were inconsistent with assessment requirements.	• Option 1 will provide the ERA with some level of discretion as to how the assessment requirements are applied. This is likely to better allow the ERA to take account of specific circumstances when assessing offers, potentially allowing for more efficient market outcomes for both consumers and Market Participants, as compared with other approaches. • This overcomes the risks to efficient market outcomes associated with other reference-based approaches that may incentivise generators to offer at the upper level of the price ranges, despite such prices not reflecting reasonable costs of production.
	Principle 2: Ex-ante certainty; reduced investigation and compliance
	• A guidance-based approach, based on published assessment considerations and assessment processes, should provide significant improvements to certainty as compared to existing arrangements. • Providing the ERA with some assessment discretion may have lower ex-ante certainty and so may limit Market Participants' ability to organise their conduct to comply with the regime as compared to reference-based approaches. • Conducting Offer Assessment on the basis of prescribed requirements, with published guidance to Market Participants is consistent with facilitating the reduction of ex-post investigation of offers.

• The WEM Rules would outline the requirements for the minimum content that must be included in the ERA guidance (the Offer Construction Guideline), as well as a requirement for the ERA to publish the processes it would undertake to conduct Offer Assessment in a WEM Procedure (Market Power Monitoring Protocol).	*Principle 3: Proportionality of competition benefits to regulatory effort and costs* • As noted in relation to Principle 2, this approach is likely to provide significant certainty benefits, and so facilitate competition in the market. • Consistent with all options, a guidance-based approach is likely to impose additional regulatory effort and costs on the ERA as compared to existing arrangements. • This form of Offer Assessment would likely place a relatively low initial regulatory burden on Market Participants, compared to reference-based approaches that may require drawn out engagement with the ERA. • It may create additional administrative burden on the ERA, compared to the current arrangements, by requiring the ERA to create assessment protocols for how it would assess offers under a range of circumstances. *Principle 4: Suitable ongoing review to account for a changing market* • Guidance-based arrangements would provide the opportunity for the ERA to amend assessment considerations contained in the guidance due to changed market conditions with appropriate market consultation. • The ERA could be required to consider the impact on market certainty prior to initiating consultation on proposed changes, but there is a risk that frequent changes could reduce faith in assessment outcomes. • As with other elements of the framework, the Offer Assessment element could be subject to periodic review (e.g. under the Coordinator of Energy's market effectiveness review).

Option 2: Cost-based reference ranges

Under Option 2, offer assessment under Stage 2 of the Market Power Test would be undertaken by the ERA on the basis of reference ranges developed in accordance with requirements set out in the WEM Rules and associated instruments. Option 2 would require the ERA to calculate cost-based reference ranges for prices in Submissions for relevant Facilities, and assess actual prices in Submissions against these reference ranges.[21]

The table below provides a description of cost-based reference ranges and their assessment against the Guiding Principles.

[21] The requirement to develop these reference ranges could be tied the Gateway Test – where the Facility of a Market Participant is identified within a Portfolio caught under the Gateway Test, would trigger the requirement to develop reference ranges for that Facility.

Description of Option	Issues and assessment against objectives
Key components	*Principle 1: Efficient recovery of costs; protection of consumers*
• The ERA would be required to obtain the relevant cost components for relevant Facilities from Market Participants, and to develop ranges for offer prices based on calculation requirements outlined in the WEM Rules.[22] • Cost components that would be included in reference range calculation requirements would include: start-up and shut-down costs; the variable costs of the Facility (including the cost of fuel); other variable costs; relevant regulatory costs or allowances; and expected amortisation of relevant costs across Intervals.[23] • Once 'final' reference ranges were identified, ranges would be communicated to relevant Market Participants, with a process and timeframes for Market Participants to update cost components for Facilities as necessary. ○ For cost components that may regularly change such as fuel costs, the ERA might be provided with the ability to apply an indexation or alternative approach. • If a Market Participant considered that the reference ranges for a Facility should deviate from the calculation requirements, it could seek to negotiate an agreed change with the ERA. • Where prices offered in Submissions are determined to be inconsistent with	• Reference ranges may be set too narrowly or too broadly. This could result in requiring market participants to submit prices that do not reflect the recovery of efficient costs, or may incentivise Market Participants to repeatedly offer prices at above production costs without fear of enforcement action. In both cases, this would have adverse impact on efficient market outcomes and may result in insufficient regulatory oversight and/or the extraction of abnormal profits from consumers. *Principle 2: Ex-ante certainty; reduced investigation and compliance* • Cost-based reference ranges, once established, are likely to provide significant ex-ante certainty to Market Participants as to when Submissions will 'fail' the Offer Assessment component of the Market Power Test. • Once established, reference ranges should be able to identify core market power exercise such as economic withholding. As a lower bound (a 'floor') would be set this may also identify potential instances of predatory pricing. • Consistent with other approaches, establishing clear guidance on the Offer Assessment element of the Market Power Test is consistent with facilitating the reduction of ex-post investigation of offers. *Principle 3: Proportionality of competition benefits to regulatory effort and costs* • As noted under Principle 1, reference ranges may hinder competitive market outcomes. • As with other options, implementing Offer Assessment will impose a significant regulatory burden on the ERA. However, a reference-based approach may require a greater step change to the current market surveillance regime compared to a guidance-based approach. • Developing cost-based reference ranges is likely to be administratively burdensome as the ERA works through

[22] An alternative approach also exists that would see Market Participants as responsible for generating reference ranges, with subsequent review by the ERA. EPWA does not believe this option is suitable in the WEM context given the additional administrative and regulatory costs associated with such a process, and so has not been considered further in this Consultation Paper.

[23] This calculation process would build upon the principles within the ERA's Guideline to inform Balance Market Offers, 22 February 2019, and EPWA's Directions Report on Clarifying Short Run Marginal Cost and market offer requirements in the Wholesale Electricity Market, 28 October 2020.

established reference ranges, the Market Participant would progress to Stage 3 of the Market Power Test. ○ Where prices in Submissions are made below the reference range for the relevant market, the ERA would have the ability to investigate further. • Where prices offered are within the reference range these offers would not be subject to further assessment under the Market Power Test ○ i.e. it would be considered compliant with the requirements of the Market Power Test. • However, the ERA would be able to pursue the Market Participant for breach of General Trading Obligations for other (i.e. non-price related) conduct.	establishing reference ranges for a large contingent of Facilities that are within (or likely to be within) Portfolios caught by the Gateway Test. • There will also be ongoing administrative and compliance costs associated with monitoring, and updating cost components (e.g. fuel costs). Any benefits of such an approach may be outweighed by the disproportionate regulatory effort needed to implement and maintain suitable reference ranges for the test.
	Principle 4: Suitable ongoing review to account for a changing market
	• Depending on the level of the prescription in the WEM Rules, arrangements could provide the opportunity for the ERA to amend, with appropriate consultation, reference calculation requirements due to changed market conditions. • Consistent with other approaches, Offer Assessment could be subject to periodic review (e.g. under the Coordinator of Energy's market effectiveness review).

Option 3: Offer-based reference ranges

Under Option 3, offer assessment would be undertaken by the ERA on the basis of reference ranges derived from prices offered in historical Submissions made by Market Participants for relevant Facilities and/or similar Facilities.

The table below provides a description of offer-based reference ranges and their assessment against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key components	*Principle 1: Efficient recovery of costs; protection of consumers*
• Calculation methods would be published, and reference ranges confidentially disclosed to relevant Market Participants. Published materials would include the process for incremental updates to reference ranges to reflect most recent market clearing prices. • In undertaking Offer Assessment under Stage 2 of the Market Power Test, the ERA would assess the prices offered within Submissions made by a Market Participant for a Facility against that Facility's reference range. In the case of inconsistency, the Market Participant would 'fail' Stage 2 of the Market Power Test. • Method requirements prescribed in the WEM Rules, and further developed and published by the ERA, would specify which set or sets of historical offers were relevant to the setting of	• In addition to the same market inefficiency risks presented by cost-based reference ranges, this method also carries the risk that the historical offers upon which reference ranges are derived may not reflect underlying costs of production for a Facility. • This may exacerbate the risk that developed reference ranges may either not allow Market Participants to recover their efficient costs, or allow them to extract abnormal profits from consumers. • Implementation of such an approach would therefore require careful consideration of the matters referred to in the option description. Checks and balances may help avoid these adverse market outcomes, but – as with any reference-based approach – may not avoid them entirely.

Facility reference ranges – this would require consideration of a number of issues, including: ○ the historical period over which previous Submission data should be taken; ○ the times at which the previous Submissions were made (i.e. 6am or 6pm); ○ the expected unit commitment of the Facility when previous Submissions were made; ○ whether the average, or median, of prices offered in Submissions should be used as the basis of setting reference ranges; ○ whether Submissions made at the time a Facility was (or would have been) caught by the Gateway Test should be excluded;[24] ○ whether reference ranges should be 'updated' for cost components that may have changed since previous Submissions were made (e.g. fuel costs).[25] • Additional checks and balances could be incorporated into the method, including using Submissions made for similar Facilities as a 'check' on the identified reference range; and/or providing the ERA with the ability to modify reference ranges in the event that it detects inefficient market outcomes. • Where prices offered are within the reference range these offers would not be subject to further assessment under the Market Power Test. However, the ERA would be able to pursue the Market Participant for breach of General Trading Obligations for other (i.e. non-price related) aspects associated with the relevant conduct.	• This method of offer assessment risks also incentivising Market Participants to gradually increase prices in offers over time ('offer creep') in order to influence reference ranges in the future.
	Principle 2: Ex-ante certainty; reduced investigation and compliance
	• Consistent with all approaches, Option 3 will provide significant ex-ante certainty to Market Participants relative to existing arrangements and, in the event that reference ranges are provided to Market Participants, should provide a clear indication of when offers will 'fail' the Offer Assessment component of the Market Power Test. • Consistent with other approaches, providing clarity on the Offer Assessment element of the Market Power Test is consistent with facilitating the reduction of ex-post investigation of offers.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Because offer-based reference ranges will be based on historical Submissions, this process should avoid much of the regulatory burden on the ERA associated with calculating 'bottom up' cost-based reference ranges. • However, as noted under Principle 1, identifying suitable offer data upon which to base prices may still impose administrative burden on the ERA
	Principle 4: Suitable ongoing review to account for a changing market
	• Similar to Option 3, arrangements could - depending on the level of prescription in the WEM Rules - provide the opportunity for the ERA to amend calculation requirements due to changed market conditions. Arrangement could also be subject to periodic review.

[24] This would be to mitigate the risk that Submissions made at a time when the Market Participant was operating with market power might not reflect underlying costs of production.

[25] NE-ISO, NYISO and MISO markets generally draw upon the lower of the mean or the median of offers in competitive periods over the previous 90 days, adjusted for changes in fuel prices. Competitive periods are defined as those in which facilities are dispatched in merit order: NE-ISO, Tariff, Market Rule 1, section III.A.7.3; NYISO, Services Tariff, Attachment H, section 23.3.1.4.4.1; MISO, Tariff, section 64.1.4.

	• The uncertainty associated with this method may make amendments based on changed market conditions more difficult.

Option 4: Price-based reference ranges

Under Option 4, offer Assessment under Stage 2 of the Market Power Test would be undertaken by the ERA using reference ranges that are calculated on historical (potentially lowest-priced) market clearing prices for Intervals where the relevant Facility was dispatched in merit order.

The table below provides a description of price-based reference ranges and their assessment against the Guiding Principles.

Description of Option	Issues and assessment against objectives
Key components	*Principle 1: Efficient recovery of costs; protection of consumers*
• The criteria for selecting suitable market clearing price data on which to base the reference range would need to be carefully considered to ensure the market prices used provide a reasonable proxy of underlying production costs. • A base for identifying appropriate market prices is likely to be those prices that occurred in Trading or Dispatch Intervals where the relevant Facility was in merit or dispatched. Matters that would need further consideration would include whether: ○ relevant price data should be based on the mean or median of clearing prices, or volume weighted average prices; ○ some market prices should be excluded from the data set – e.g. the highest and lowest priced Intervals (e.g. the highest 15% of clearing prices, and all prices below a $/MWh threshold – e.g. $15/MWh). ○ market prices where the Facility was or would have been within a Portfolio caught by the Gateway Test, or where the Facility was dispatched out of merit order, should be excluded. • Calculation methods would be published, and reference ranges confidentially disclosed to relevant Market Participants. Published materials would include the process for incremental updates to reference ranges to reflect most recent market clearing prices.	• Consistent with Options 2 and 3, Option 4 carries the risks of developing reference ranges that do not reflect production costs, leading to inefficient market outcomes. ○ The lack of Local Marginal Pricing in the WEM further complicates identifying suitable market clearing prices as Facilities can be 'mispriced' in the WEM when they operate behind binding constraints. *Principle 2: Ex-ante certainty; reduced investigation and compliance* • The certainty benefits of Option 4 are likely to be consistent with those under Options 2 and 3; though the uncertainty and complexity associated with identifying suitable market clearing prices may erode these benefits to some degree. *Principle 3: Proportionality of competition benefits to regulatory effort and costs* • Similar to Option 3, this method may reduce the regulatory burden to Market Participants compared to a cost-based approach. • This method would require significant effort by policy makers and/or the ERA to identify the market clearing prices that best reflect underlying costs of production. • Market clearing prices, if used without significant narrowing of the data set, are likely to be significantly greater than an individual Facility's incremental operating costs except in circumstances where the Facility is the marginal producer. • In addition, the effort needed to identify, and maintain, suitable criteria to identify market clearing

• Like the offer-based reference range approach, to ensure that reference ranges reflected the actual costs of underlying cost components, the price-based reference range may need to be updated for changes to fuel prices and opportunity costs.[26] • Where prices offered are within the reference range these offers would not be subject to further assessment under the Market Power Test. However, ERA would be able to pursue the Market Participant for breach of General Trading Obligations for other (i.e. non-price related) aspects associated with the relevant conduct.	prices may not be proportionate to the benefits generated, particularly when compared to other potential options.
	Principle 4: Suitable ongoing review to account for a changing market
	• Similar to other methods, these arrangements could be subject to change and review. Like Option 3, the complexity of Option 4 may make amendments based on changed market conditions more difficult.

3.2.3 Summary of analysis against Guiding Principles

Principle 1 - Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power

EPWA notes that the reference-based approaches provide Market Participants with visibility of pre-determined reference ranges (prior to market activity) and, thus, provide certainty of when offers will 'fail' assessment. However, analysis indicates that such arrangements may have the capacity to incentivise participant behaviour that may be adverse to efficient market outcomes.

In particular, where reference ranges for prices are set within a relatively broad band, participants may be incentivised to make offers at the upper end of the reference range regardless of actual production costs. On the other hand, setting reference ranges narrowly may require participants to offer prices that do not meet the production costs of the relevant Facility.

Under Options 3 and 4, historical offer prices or market clearing prices are used as a proxy for production costs. The risk of market inefficiency may be greater under such arrangements due to the possibility that the proxy measures do not accurately reflect production costs.

Option 1 provides a level of flexibility in how Offer Assessment is conducted. This mitigates against providing perverse incentives to participants that may occur through fixed ranges, while also avoiding the issues associated with using proxy measures for production costs.

EPWA therefore considers Option 1 as being most likely to deliver efficient market outcomes compared to other options.

Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation

Analysis indicates that all options considered are likely to provide greater certainty to Market Participants as compared to current arrangements, and would result in reduced ex-post investigation and litigation.

EPWA notes that the reference based approaches (Options 2, 3 and 4) would provide visibility of appropriate price ranges prior to Market Participants making offers, and are thus likely to provide greater level of certainty than Option 1. However, EPWA is also mindful that the uncertainty and complexity associated with Options 3 and 4 may reduce the certainty benefits of these options to some extent.

[26] This is the case in New England market in the US, see NE-ISO, Tariff, Market Rule 1.

EPWA acknowledges that Option 1 may provide less certainty to Market Participants than reference based approaches, but considers that this can be mitigated to some degree by:

- the publication of clear guidance by the ERA;
- a requirement to engage with Market Participants in respect of any changes to the guidance; and
- providing the opportunity to consult on some offer parameters with the ERA (see Section 3.3).

Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs

EPWA notes that Options 1 and 2 are both likely to require engagement by the ERA with Market Participants on relevant cost components, but that this process can likely be coordinated with existing information gathering processes. Option 2 may impose a higher administrative burden relative to Option 1 as the ERA would be required to develop reference ranges for all Facilities caught by the Gateway Test.

Options 3 and 4 may impose less of a regulatory burden on Market Participants, as calculating reference ranges on this basis would be based on market data rather than the costs of individual Facilities. However, to mitigate the risk that reference ranges do not reflect underlying production costs, significant effort would need to be made under Options 3 and 4 to identify suitable data sets to generate accurate production costs.

Development of the appropriate methodologies (and potential ongoing updates to such methods) would likely impose significant costs on policy makers and the ERA. Such effort and costs are unlikely to be proportionate to the benefits relative to other options

Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions

On balance, EPWA considers that Option 1 will be most likely to provide flexibility for change, in combination with adopting a methodology that is clear and understood by stakeholders.

All methods considered for Offer Assessment provide the opportunity for periodic review as part of the Coordinator of Energy's market effectiveness monitoring role. However, EPWA notes that the utilisation of proxy measures adopted under Options 3 and 4 are more likely to create complexity of potential amendment processes, as compared to Options 1 and 2.

EPWA also notes that to obtain the certainty benefits associated with Options 2, 3 and 4, calculation requirements for reference ranges will likely need to be included within the WEM Rules. These requirements will be more difficult to amend to accommodate changed market conditions as compared to Option 1.

Options	Guiding Principle 1	Guiding Principle 2	Guiding Principle 3	Guiding Principle 4
1. Guidance-based assessment	✓	✓	–	✓
2. Cost-based reference ranges	✗	✓	✗	–
3. Offer-based reference ranges	✗	✓	✗	–
4. Price-based reference ranges	✗	✓	✗	–

Table 4: Summary of each offer assessment option against the guiding principles

3.2.4 Recommended Option

Option 1 – Guidance-based assessment

EPWA's initial view is that Option 1 (guidance-based assessment) is most likely to meet the Guiding Principles.

EPWA acknowledges the certainty benefits that might be provided through adopting reference-based approaches but, on balance, does not consider that the potential improvements to competition would outweigh the detriment of inefficient market outcomes that may result from any of the reference based approaches.

EPWA considers that the risks associated with market inefficiencies are best mitigated through providing the ERA with some flexibility in applying assessment requirements – and this is best facilitated through the guidance-based assessment arrangements under Option 1.

EPWA believes that guidance-based arrangements can meet the ex-ante certainty requirement of the Guiding Principles by requiring the ERA to provide clear guidance on Offer Assessment and by providing the opportunity for consultative arrangements between Market Participants and the ERA.

EPWA notes that this will require the ERA to develop and publish detailed guidance and protocols/procedures on its assessment processes, but considers this effort is proportionate given the broader objectives of the framework. The guidance-based approach is detailed further under the Proposed Detailed Design in Section 4 of this Report.

Consultation Questions

4. Do stakeholders agree with EPWA's assessment of the four options considered for Offer Assessment? If not, what additional information or analysis should EPWA have had regard to?

3.3 Unconfirmed element (c): Pre-approval of Offer Parameters

3.3.1 Overview and context

The Taskforce's Consultation Paper proposed arrangements for a Pre-approval Framework that would allow Market Participants with market power to voluntarily seek pre-approval by the ERA of some offer parameters.[27]

Offer parameters subject to agreement by the ERA were proposed to include:

- offer prices and quantities (or ranges) for particular Facilities;
- specific cost components used to form offer prices (for example: fuel costs, and operation and maintenance costs); and
- methods or processes for incorporating cost components into offer prices and quantities within Submissions (for example: total product cost calculations).

The Taskforce also proposed to allow the ERA to agree to variations to the internal MPM controls applicable to Market Participants responsible for Facilities in a Portfolio identified under the Gateway Test.[28]

Agreement by the ERA would have resulted in the Offer Assessment conducted under Stage 2 of the Market Power Test being undertaken on the basis of agreed offer parameters. For example, were the ERA to agree with a Market Participant an appropriate value for fuel costs for a Facility, the Market Participant would have certainty that the agreed value would meet the assessment requirements.

On the basis of stakeholder feedback, the Taskforce considered that further examination should be undertaken to identify the need for, and practicality of, such arrangements, and particularly the risk that any issues that arise via negotiations between Market Participants and the ERA may be unable to be resolved.

3.3.2 Options Analysis

Option 1: Pre-approval Framework (as proposed by the Taskforce)

Implementing a Pre-approval Framework has the potential to mitigate some of the uncertainty risks that are associated with implementing the proposed guidance-based approach to Offer Assessment. EPWA notes that if an alternative method for carrying out Offer Assessment were to be adopted (for example offer-based reference ranges), then a Pre-approval Framework would be unlikely to offer the same certainty benefits.

Under the Guiding Principles, any certainty benefits (and the associated competition benefits) must be considered relative to the regulatory costs imposed, and any associated risks. EPWA has therefore considered the scope of matters that the ERA would be required to agree to under a Pre-approval Framework, and the associated implementation practicalities, regulatory costs and potential market efficiency impacts.

Assessment against guiding principles

A Pre-approval Framework would allow Market Participants to seek ERA agreement in relation to a range of offer parameters, and may include the scope for requests for all Facilities subject to Offer

[27] Energy Transformation Taskforce, Improvements to Market Power Mitigation Mechanism, 21 May 2021, p 11

[28] Additional information and internal control requirements are discussed in more detail in section □□.

Assessment under the Market Power Test. Such agreements may lapse over time, which would require the ERA to consider amendments to (or new) requests. This would be likely to impose a significant burden on the ERA resources when compared to existing arrangements. This burden is likely to be greatest under pre-approval arrangements that allow for a broad scope of offer parameters to be negotiated, and where there is an obligation on the ERA to negotiate and reach agreement with Market Participants.

Market Participants may wish to agree all possible offer parameters with the ERA, on the understanding that where prices in Submissions for a Facility are consistent with those parameters, this would meet the requirements of Offer Assessment under the Market Power Test.

The ERA's agreement to such offer parameters would be likely to function as a de facto reference range for offer prices. As discussed in section 3.2, the use of reference ranges may result in inefficient market outcomes by providing a Market Participant with incentives to offer prices at the maximum of that reference range, despite such prices not reflecting reasonable production costs.

Given the enforcement consequences of offers not meeting Offer Assessment requirements (see section 4.3.5), negotiations would require the ERA to consider the application of the requested agreement under all potential circumstances to ensure any agreement would not result in outcomes adverse to market objectives.

To avoid imposing an unreasonable regulatory burden on the ERA, the Pre-approval Framework may need to restrict the matters that Market Participants could request the ERA to agree to, and may need to allow the ERA to elect not to agree to methods or values that are uncertain or that would impose unreasonable assessment obligations on the ERA.

Given the risk to market efficiency and the potential regulatory burden, EPWA does not propose to adopt a Pre-approval Framework under the Proposed Design.

Option 2: Consultation Framework (an alternative approach)

An alternative approach to the Pre-approval Framework would be to provide a formal process in the WEM Rules to allow Market Participants to consult with, and seek individual guidance from, the ERA on appropriate treatment of offer parameters and other matters in the Offer Construction Guideline. Such arrangements for a "Consultation Framework" could support assessment certainty, without the need for formal agreement between Market Participants and the ERA.

It is proposed that the guidance provided in consultation with the ERA would not be binding on the ERA or Market Participant, but there would be an expectation that where the Market Participant operated consistent with that guidance, the ERA would take this into account during any Offer Assessment.[29]

Under the proposed guidance-based approach to Offer Assessment (section 3.2.23.2.2), the ERA's published guidance material would not specify values for cost components (e.g. specific fuel costs) underpinning offer prices for particular Facilities. Rather, it would be expected to contain suitable assumptions, processes, methods and calculations that allow for cost components to be appropriately incorporated into the prices for a Facility for a particular period. These methods and processes might include:

- the calculation of total production costs;
- the calculation of heat rates; and
- how start-up and shut-down costs should be amortised across the expected unit commitment period by a Facility type.

[29] This is not unlike 'no-action' letters issued by ASIC and the AER, which provide an indication that enforcement action related to particular conduct will not take place. In both cases, a no-action letter is not a guarantee that action will not be taken in relation to a contravention. See ASIC, Regulatory Guide 108, December 2009; ANAO, Regulation of the National Energy Market, 2020.

There may however be instances where a Market Participant considers that an alternative cost component, method or process represents a reasonable alternative or variation to that provided in the published Offer Construction Guideline.

Under the Consultation Framework, a Market Participant in such cases would be able to request guidance from the ERA as to whether the proposed alternative or variation would be consistent with the assessment requirements, or to request that the ERA provides greater clarity on the Offer Construction Guideline.

As part of this process, the ERA could also be required to consider whether amendments should be made to the Offer Construction Guideline. This would be appropriate in situations where the guidance sought by a Market Participant related to the meaning or general application of the Guideline, rather than clarification provided by the ERA on matters related only to that individual Market Participant.

Assessment against the guiding principles

Such arrangements would be likely to impose an additional regulatory burden on the ERA, as compared to current arrangements. Taking account of Guiding Principle 3, if the administrative burden is significant, the ERA may face incremental costs that outweigh the benefits of any additional certainty provided to the market.

After further assessment, EPWA believes this burden would be significantly less than under a Pre-approval approach, given it would not constitute a binding agreement between parties. To reduce this burden, EPWA proposes to restrict the matters that Market Participants could seek guidance on, and/or allow the ERA to refuse to provide guidance under certain circumstances.

This could include where it would impose an unreasonable administrative or assessment burden on the ERA, or where the information provided by the Market Participant is insufficient to enable the ERA to provide guidance.

Application of the Consultation Framework to information retention requirements and internal governance arrangements

EPWA's Proposed Design for the MPM framework includes a requirement for Market Participants caught by the Gateway Test to adopt internal governance arrangements for their trading conduct and compliance monitoring, and record keeping in relation to changes to offer prices and quantities, to ensure compliance with their obligations (section 4.3.7).

Two submissions in response to the Taskforce Consultation Paper expressed concern that the proposed record keeping obligations could be overly onerous and impose higher than necessary costs, while not delivering the required benefits.[30]

The adoption of the proposed Gateway Test (section 3.1) based on a static CR of 10 per cent of sent out capacity will not, based on quantitative analysis,[31] capture smaller Portfolios. In addition, all Market Participants will be required to keep a record of reasons for submitting a subsequent RTM Submission, as well reasons for changes to particular parameters from standing data, where the Submission is made within 48 hours of the Pre-dispatch Interval.[32]

EPWA does not consider the costs associated with additional record keeping and internal control measures will represent a significant regulatory burden or impose material costs on the larger participants that are likely to be caught under the proposed test, and in any event are likely to be proportionate to the benefits.

[30] AEC, Submission on Proposals for changes to Market Power Mitigation Mechanisms Consultation Paper, 20 April 2021; Shell Energy, Submission on Proposals for changes to Market Power Mitigation Mechanisms Consultation Paper, 30 April 2021

[31] See Appendix D.

[32] Companion WEM Rules (1 February 2022), clauses 7.4.26(b), 7.4.27(b)

Given the above, EPWA does not consider there should be opportunity for relevant Market Participants to negotiate amendments to the proposed additional measures and therefore these are not proposed to be covered by the Consultation Framework.

3.3.3 Recommended Option

Option 2: Consultation Framework

EPWA's initial view is that the MPM framework should not provide the opportunity for Market Participants to request agreement by the ERA to offer parameters via a Pre-approval Framework. EPWA does not consider the associated competition benefits are likely to outweigh the regulatory costs and/or risks to market efficiencies that may arise as a result of such arrangements. Combined with the additional heavy burden that may be placed on the ERA, EPWA does not believe a Pre-approval Framework would be consistent with the Guiding Principles.

EPWA therefore proposes to adopt the Consultation Framework approach, under which Market Participants would be able to request individual guidance from the ERA on the offer parameters they intend to use. Such offer parameters would likely include cost components used to form prices, and/or methods or processes related to incorporating cost components into prices and quantities within offers.

EPWA considers that such arrangements would contribute to improving the certainty of the Offer Assessment framework for Market Participants, and help to realise associated competition benefits without the risks associated with a binding Pre-approval Framework.

EPWA is mindful not to impose significant administrative burden on the ERA under a Consultation Framework. EPWA therefore favours structuring the Consultation Framework to limit the ERA's obligation to give guidance on offer parameters, unless it is of the view that the guidance would provide for the accurate identification of Facility production costs, and/or that the provision of guidance would not impose unreasonable additional burden on the ERA.

EPWA's proposed arrangements are further detailed in the Proposed Design under section 4.3.5.

Consultation Questions

5. Do stakeholders agree with the proposed approach? If not, what additional information or analysis should the EPWA have had regard to?

3.4 Unconfirmed element (d): Level of guidance to be provided to the ERA

3.4.1 Key elements and summary

In response to the Taskforce Consultation Paper, most submissions recommended that the WEM Rules implementing the MPM mechanism should provide guidance for decisions by the ERA in developing and applying the new arrangements.

In particular, a concern was raised that the ERA may misinterpret the purpose or requirements of the Market Power Test if it is afforded authority to, "…design, approve, review, implement and apply all critical components of the mechanism".[33] It was further noted that highly discretionary arrangements may impact on the decisions of future investors.

3.4.2 Options Analysis

EPWA has identified three broad options for the level of prescription that might be provided to the ERA in the WEM Rules in relation to the Market Power Test. These options are broadly reflective of the choices that rule makers have when deciding the level of discretion to provide to a regulator.[34]

Option 1 entails a relatively high level of prescription and a low level of ERA discretion. It would lead to the structural elements, assessment objectives and assessment criteria being prescribed in the WEM Rules. At the other end of the spectrum, under Option 3 the WEM Rules would only prescribe that the ERA develop a Market Power Test, with the obligation on the ERA to develop specific objectives and criteria.

Option 2 represents a balance between the two levels of prescription, affording the ERA some ability to determine how it would conduct the required assessments in order to meet objectives prescribed in the WEM Rules.

EPWA acknowledges there are multiple sub-options within each of these and, as will be discussed, that particular levels of prescription may be more suited to some types of arrangements than others.

Options considered

The table below summarise three options which provide different levels of guidance to the ERA in undertaking the Market Power Test:

- Option 1 – the WEM Rules would outline the detailed requirements under the Market Power Test (high prescription).
- Option 2– the WEM Rules would outline high level elements of the Market Power Test and key objectives (moderate prescription).
- Option 3 – the WEM rules would outline the high level requirement for a Market Power Test with limited detail provided (low prescription).

[33] Synergy - Submission on Proposals for changes to Market Power Mitigation Mechanisms Consultation Paper, 30 April 2021

[34] See Schmidt R & Scott, C. - 'Regulatory discretion: structuring power in the era of regulatory capitalism', 5 April 2021

Option 1: high prescription	Option 2: moderate prescription	Option 3: low prescription
Matters outlined in the WEM Rules		
• Require the ERA to conduct a three-part Market Power Test, and provide the ERA the powers to do so. • Prescribe in detail key structural components, and assessment criteria for all elements of the Market Power Test, including the basis upon which offers are to be assessed, and how market impacts are to be evaluated. • Set out enforcement consequences of 'passing' or 'failing' each stage of the Market Power Test. • Prescribe all requirements for WEM Procedure/guidance material.	• Require the ERA to conduct a three-part Market Power Test, and provide the ERA with the powers to do so. • Prescribe – at a high-level – the key structural elements of the Market Power Test, but not the processes. • Prescribe objectives for ERA assessment of offers and market impacts. • Set out enforcement consequences of 'passing' or 'failing' each stage of the Market Power Test. • Prescribe any WEM Procedure and guidance material required.	• Require the ERA to conduct a three-part Market Power Test and provide the ERA the power to do so. • Set out the high-level objective(s) that the Market Power Test is aimed at achieving, but leave the specific components of the test for the ERA to develop by way of WEM Procedures. • Prescribe enforcement consequences for 'passing' or 'failing' each stage of the Market Power Test. • Prescribe any further guidance requirements
Matters outlined in a WEM Procedure or Guidance		
• Largely unnecessary as all elements would be set out in the WEM Rules, but may include details of any additional systems or processes the ERA intends to utilise in meeting Market Power Test requirements.	• The ERA would consider the high-level structural elements articulated in the WEM Rules, and develop the relevant processes. • The ERA would need to apply the assessment objectives and publish in guidance criteria to be used in assessment. • The ERA would need to articulate how it intends to obtain information from the market, as well as set out any additional systems or processes it intends to utilise in carrying out the Market Power Test.	• WEM Procedures would contain all elements of the Market Power Test, and the methods/processes/criteria the ERA would use to undertake the test. • The procedures would also include elements noted in Options 1 and 2.

In some circumstances, higher levels of prescription in the WEM Rules may result in a greater level of certainty to Market Participants. For example, certainty regarding the structural elements of the test and the objectives for assessment are likely to provide Market Participants with confidence in how, and on what basis, the ERA will conduct the required assessment.

However, where the objectives or outcomes under the relevant WEM Rules require consideration of a number of complex matters, a high level of prescription may result in outcomes that are contrary to the objectives of the framework itself.

In these circumstances, the lack of discretion afforded to the ERA may actually reduce the level of certainty to Market Participants, particularly where circumstances arise that were not contemplated

at the time relevant WEM Rules were drafted. In such circumstances, the ERA would be required to apply the criteria and/or process as prescribed, even where the outcome might be contrary to the objectives. For example, as noted in EPWA's Information Paper on SRMC, identifying appropriate fuel cost inputs for offers presents significant challenges.[35] Providing detailed criteria under the WEM Rules that the ERA would need to follow in undertaking Offer Assessment may yield outcomes contrary to market expectations and broader objectives over time.

In addition, such arrangements are likely to require ongoing amendments to the WEM Rules to account for changed market conditions, potentially leading to a reluctance of parties to commit the resources needed to make such changes. Such prescription would also prevent the publication of clarifying guidance by the ERA.

However, for some elements of the Market Power Test that require less nuanced decision making by the ERA, for example the Gateway Test, providing more prescriptive criteria is likely to be practicable given the need to provide certainty to participants.

In circumstances where the ERA is provided with discretion as to the overall structure and assessment objectives for each stage of the Market Power Test (Option 3), this may lower certainty and confidence in assessment outcomes.

While the ERA may be required to issue WEM Procedures or guidance materials setting out further details of how assessment will be conducted, the ERA would be largely unconstrained as to the content or direction of these material. Such an approach is unlikely to be consistent with 'best practice regulation' as it may significantly limit the accountability of the ERA.[36]

In assessment matters that are expected to present low assessment complexity, such as procedural matters, affording the ERA significant discretion may result in uncertainty that may negatively impact on market efficiency.

3.4.3 Recommended Option

EPWA considers that a balanced approach should be adopted on the level of prescription provided to the ERA in the WEM Rules in undertaking the Market Power Test. It considers that a reasonable application of the approach presented under Option 2 above is most likely to meet the Guiding Principles regarding certainty, regulatory effort and market efficiency.

EPWA acknowledges the concerns raised by stakeholders, in that if the WEM Rules do not adequately prescribe the structural elements or objectives of the Market Power Test, arrangements are unlikely to be consistent with the certainty required by the Guiding Principles (Principle 2). This is because investors or participants are unlikely to be provided with sufficient information as to how the Market Power Test will operate.

For elements of the Market Power Test that will require consideration of a range of complex matters to meet prescribed assessment objectives, namely Offer Assessment (Section 4.3.5), and the Market Impact Test (Section 4.3.64.3.6), EPWA considers that the ERA should be provided with some discretion for how it conducts the relevant assessment.

EPWA considers this approach is consistent with Principle 1 of the Guiding Principles, as it is more likely to result in outcomes that meet the assessment objectives, and thus would contribute to market efficiency.

[35] EPWA, Directions Report - Clarifying Short Run Marginal Cost and market offer requirements in the Wholesale Electricity Market, 20 October 2020, p 3

[36] See Swier, G. - The Australian Energy Regulator and Best Practice Regulation, ACORE Seminar series, 6 April 2006

In the case of the proposed Gateway Test, the ERA will likely need to conduct less complex analysis, and thus EPWA considers procedural elements for this test should be prescribed in the WEM Rules, where it is practical to do so, to provide further certainty.

EPWA is also cognisant of the lack of flexibility that more prescriptive arrangements might create, and the administrative burden this may impose if the WEM Rules need to be updated regularly to account for changed market conditions or unforeseen circumstances.

For this reason, EPWA considers that assessment requirements should be contained in guidelines developed and consulted on by the ERA. EPWA considers that the ERA should have the capacity to update assessment criteria in guidance where it considers this is necessary to meet the assessment objectives.

Consistent with this approach, EPWA proposes the WEM Rules prescribe the following:

- the core structural elements for each stage of the Market Power Test;
- the objectives that the relevant assessment carried out by the ERA under each stage of the Market Power Test should seek to achieve;
- that the ERA must publish guidance outlining assessment considerations for Stages 2 and 3 of the Market Power Test based upon the assessment objectives in the WEM Rules; and
- that the ERA must develop and publish a WEM Procedure (a Market Power Monitoring Protocol) setting out the processes it will undertake in conducting the Market Power Test.

Consultation Questions

6. Do stakeholders consider the level of prescription proposed by EPWA for the Market Power Test is appropriate?

3.5 Unconfirmed element (e): Energy and FCESS Price Limits

3.5.1 Key elements and summary

As noted in its Information Paper, the Taskforce previously determined that price limits will be set for the energy and FCESS markets, noting that these provide a backstop for other elements of the MPM framework. The Taskforce indicated, consistent with Guiding Principles, that price caps should be high enough to allow participants to recover efficient costs, and that the process for setting the price limits should employ a mechanism that reduces the effort and frequency of adjustment.

It also indicated that a single energy price cap should apply, in place of the current dual price caps (known as the Maximum STEM Price and Alternative Maximum STEM Price).

The Proposed Design considers the appropriate level for the price caps and floors for the energy and FCESS markets, as well as the process for determination.

3.5.2 Energy price Cap

Options Considered

In considering options for the energy price cap, EPWA analysed high price events in the period from 1 July 2019 to 25 April 2022 and found that existing energy price caps were rarely reached, suggesting that buyers and sellers achieved an equilibrium outcome below the energy price cap.

Such a market outcome over a sustained period would suggest that generators are receiving at least their efficient costs.

During the period assessed, the Balancing Price only reached the Maximum STEM Price for 45 Trading Intervals – less than 0.1 per cent of the time – and was within $25/MWh of the Maximum STEM Price for another 17 Trading Intervals. It did not exceed the Maximum STEM Price (the lower of the two existing energy price caps) over the same period.

STEM outcomes are typically less volatile than those in the Balancing Market. This is reflected in the fact that the STEM Price was within $25/MWh of the Maximum STEM Price in one Trading Interval only, and within $100/MWh in 100 Trading Intervals from 1 July 2019 to 25 April 2022. All of these Trading Intervals occurred in the 2019-20 financial year, which had the lowest Maximum STEM Price ($235/MWh) in the period assessed.

Given this, EPWA considered two options for setting the energy price cap: a cost-based option and a 'set-and-forget' option. These are assessed in the tables below.

Option 1: single cost-based energy price cap

Option 1 proposes a single cost-based energy price cap, set at the highest reasonable operating cost plus a margin, rounded up to the nearest $100/MWh. This is consistent with the Taskforce's Proposed Design in its Information Paper.

The table below describes a single cost-based energy price cap and assesses this against the Guiding Principles.

<table>
<tr><th>Description of Option</th><th>Issues and Assessment against objectives</th></tr>
<tr><td>Key Components</td><td>Principle 1: Efficient recovery of costs; protection of consumers</td></tr>
<tr><td rowspan="8">The energy price cap applies to energy offers and clearing prices.
The ERA will determine the energy price cap based on estimates of reasonable operating costs for the most expensive facility or facilities in the SWIS (no specific technology to be prescribed in the WEM Rules).
The price cap would be reviewed and calculated every three years. This reduced review frequency is enabled in part by the inclusion of a margin, and by rounding up the result to the nearest $100/MWh.
There could be potential for indexation within the review cycle (inflation, fuel costs).
There could be potential for in-cycle determination of the energy price cap in exceptional circumstances, initiated by the ERA unilaterally, or on participant request.</td><td>This option does not constrain the recovery of efficient costs, being based on the highest reasonable operating cost for facilities in the SWIS, with an additional margin added.
Protection against extraction of abnormal profits should not be reduced, as price limits are a backstop for other elements of the MPM framework.</td></tr>
<tr><td>Principle 2: Ex-ante certainty; reduced investigation and compliance</td></tr>
<tr><td>This option retains a reflection of operating costs, consistent with the Market Power Test, supporting ex-ante certainty and reinforcing the other elements of the MPM framework.</td></tr>
<tr><td>Principle 3: Proportionality of competition benefits to regulatory effort and costs</td></tr>
<tr><td>Regulatory effort is reduced through the removal of the second price cap and the reduced review frequency.</td></tr>
<tr><td>Principle 4: Suitable for ongoing review to account for a changing market</td></tr>
<tr><td>Provisions for indexation and in-cycle reviews allow for adaptation to changing circumstances.</td></tr>
</table>

Option 2: high price cap

Under Option 2, a high price cap would be set, well above expected operating costs. This approach is similar to the PJM market, which uses an energy price cap of US$1,000/MWh.

The table below describes a potential high energy price cap and assesses this against the Guiding Principles.

Description of Option	Issues and Assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• The energy price cap would be stipulated in the WEM Rules. • 'Set and forget' approach: no periodic review requirement would be stipulated; any reviews would be via the rule change process. • Expected to result in a higher price cap than the under Option 1.	• Under this option the price limits would be set above the operating costs of the highest cost Facility, and so may provide the opportunity for Market Participants to price offers above what they are able to do under the status quo, or compared to Option 1. This is likely to erode consumer protections against extraction of abnormal profits. • Unlikely to constrain the recovery of efficient costs given the expectation that the price cap would be set well above operating costs.
	Principle 2: Ex-ante certainty; reduced investigation and compliance
	• Option 2 lacks relevance to operating costs and may be at odds with other elements of the Market Power Test. • It may also reduce ex-ante certainty and confidence in the overall MPM framework.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Regulatory effort is reduced by removing a periodic review. • However, the lost information that would be gleaned from a periodic review can be valuable for the rest of the MPM framework and broader market monitoring and review processes.
	Principle 4: Suitable for ongoing review to account for a changing market
	• Adjustment of the price cap would require a rule change process.

In considering Option 1, EPWA notes that the energy price limits in the WEM have historically been determined based on "short dispatch cycles", being generator run times of between 0.5 and six hours. Analysis undertaken previously for the Taskforce indicated that the duration of daily demand peaks typically extended up to four hours.

This analysis was the basis for setting the Electric Storage Resource Obligation Duration at four hours in the gazetted WEM Rules. For consistency, EPWA considers that the existing practice of analysing short dispatch cycles for the determination of energy price limits could be focused more narrowly, to a maximum of four hours.

Summary of analysis against guiding principles

Principle 1 - Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power

Neither option is likely to constrain the recovery of efficient costs, given that each should allow for a margin above the highest reasonable operating costs for facilities on the SWIS. However, given Option 1 will be based upon actual costs of Facilities, rather than an estimated figure (that may need to be set at a considerable margin above highest estimated operating costs), Option 1 is likely to provide superior consumer protections.

Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation

EPWA considers that ex-ante certainty is supported through the development of a consistent MPM framework, promoting confidence in the operation of the framework.

EPWA considers that Option 1 better satisfies this Guiding Principle. Option 1 retains a connection to operating costs, consistent with the Market Power Test. Option 2 lacks this connection.

Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs

Both options reduce the regulatory effort of determining price caps relative to the status quo. Option 1 removes the second price cap that exists under current arrangements, and reduces the review frequency. Option 2 goes further, prescribing the price cap in the WEM Rules and removing a requirement for its periodic review.

EPWA notes that a periodic review, supported by a public consultation process, may provide information that is valuable for the rest of the MPM framework and broader market monitoring processes.

Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions

On balance, EPWA considers that the potential for indexation and in-cycle determinations under Option 1 provides greater flexibility for adjustment to changing circumstances.

While Option 2 allows for the price cap to be amended through the rule change process, EPWA considers this to be potentially less flexible than the adjustment mechanisms under Option 1.

Options	Guiding Principle 1	Guiding Principle 2	Guiding Principle 3	Guiding Principle 4
1. Single cost-based energy price cap	✓	✓	✓	✓
2. High energy price cap	✗	✗	✓	–

Table 5: Summary of options for energy price caps against the guiding principles

Recommended Option

Option 1 – single cost-based energy price cap

EPWA's initial view is that Option 1 (the single cost-based energy price cap) is better aligned with the Guiding Principles. EPWA considers that by retaining a method that identifies the price cap based on operating costs of Facilities within the market, it will reflect actual market requirements and so better reflect efficient market outcomes to ensure consumers are protected against the extraction of abnormal profits. This option also allows for reduced regulatory effort relative to the setting of the current energy price limits, while retaining the ability to adapt to changing circumstances.

While Option 2 (the 'set-and-forget' price cap) may further reduce the required regulatory effort, it is unlikely to offer the same consumer protections relative to status quo. EPWA also considers that such an approach will reduce consistency with the other cost-based elements of the MPM framework and may diminish ex-ante certainty and confidence in the overall MPM framework.

Consultation Questions

7. Do stakeholders agree with EPWA's assessment of the options for the energy price cap?

3.5.3 Energy Price Floor

Options Analysis

The energy price floor in the WEM (the Minimum STEM Price) has been set at -$1,000/MWh since the commencement of the Balancing Market. This value was previously prescribed in the WEM Rules. However, a new process for reviewing the Minimum STEM Price was established in 2020 following a rule change process.[37] This requires the ERA to determine the Minimum STEM Price annually, according to the principles and analysis requirements set out in section 6.20 of the WEM Rules.

The ERA determined to maintain the Minimum STEM Price of -$1,000/MWh in its 2021 review, and has proposed to maintain the same value in its draft determination for the 2022 review.[38] Concurrently, the Reliability Panel has proposed to retain the energy price floor in the National Electricity Market (NEM) at -$1,000/MWh in the draft report for the 2022 Reliability Standard and Settings Review.[39]

Analysis of market outcomes from 1 July 2019 identifies that Balancing Prices have fallen below -$999/MWh in only 11 Trading Intervals, on five separate days. The next lowest Balancing Price during the period was -$202/MWh. STEM Prices did not fall below -$75/MWh in that period.

Given the rarity of price floor events, the relative newness of the process for reviewing the Minimum STEM Price, and the recent review findings in the WEM and NEM, EPWA has considered only one change for the determination of the energy price floor: that it be determined on a three-yearly basis according to the principles and process currently set out in the WEM Rules.

[37] Rule change RC_2019_05.

[38] See https://www.erawa.com.au/electricity/wholesale-electricity-market/price-setting/minimum-stem-price-review.

[39] See https://www.aemc.gov.au/market-reviews-advice/2022-reliability-standard-and-settings-review.

Some minor changes may need to be made to the relevant rules to reflect lessons learned from the ERA's recent reviews, and to provide for an in-cycle review similar to that for the energy price cap.

Recommended Option

EPWA's initial view is that the energy price floor should be determined on a three-yearly basis, according to the process and principles set out in section 6.20 of the WEM Rules. Minor changes may need to be made to the relevant rules to reflect lessons learned from the ERA's recent reviews.

EPWA considers that this approach does not constrain the recovery of efficient costs (Principle 1), given the rarity of price floor events; will reduce regulatory effort (Principle 3) by reducing the review frequency; and provisions for in-cycle reviews will allow for adaptation to changing circumstances (Principle 4).

3.5.4 FCESS Price Cap

Options Analysis

A participant providing a FCESS, depending on the technology deployed, may incur some or all of the following costs:[40]

- Efficiency costs – reflecting that the facility may be operated in a less efficient way in order to provide the FCESS (e.g. increased fuel consumption);
- Wear and tear costs – reflecting accelerated ageing, increased or accelerated maintenance costs and the risk of higher outage rates;
- Stability costs – reflecting that the facility may be operated in conditions for which stable operation may be compromised (potentially including a greater risk of unit trips); and
- Opportunity costs – where the service is provided at the expense of another value stream. Depending on energy offers and clearing prices, these costs could be an order of magnitude larger than the sum of the other costs.

Analysis of prices from the current Load Following Ancillary Service (LFAS) Market between July 2019 and April 2022 finds that the highest clearing price in that time was $95/MW, with prices only exceeding $70/MW in less than 0.1 per cent of Trading Intervals.

Unlike the current LFAS Market, which is cleared hours ahead of the Balancing Market, the co-optimisation and pricing algorithms in the new RTM will operate quite differently. Under many circumstances, the RTM will calculate the clearing price for a FCESS to include any opportunity cost incurred by the marginal provider – even where these opportunity costs are not included in offers.[41]

There are specific circumstances where a generator may be required to run to provide a FCESS but would not otherwise be required for energy. In this situation, where the generator is required to run at its minimum generation level, it is possible that neither the energy price nor FCESS price compensate the generator for its energy opportunity cost. This issue may be relatively common at the start of the new WEM, but is expected to reduce in frequency as and when the capacity of alternative technologies grows in the SWIS.

[40] Nicholas W. Miller, Costs of Providing Frequency Regulation, 27 Dec 2017.

[41] An example of this was included in the meeting slides for Meeting 21 of the Transformation Design and Operation Working Group, see slide 7.

Given all of the above, and Guiding Principle 1 for the recovery of efficient costs, EPWA has considered three options for setting the FCESS price cap.

- Option 1 includes a price cap set to include the highest reasonable operating cost, excluding opportunity costs. The clearing price will be allowed to exceed this FCESS price cap to allow recovery of opportunity costs where these are calculated and priced by the dispatch engine.
    - To address scenarios where opportunity costs may not be fully compensated, this option includes a separate FCESS Uplift Payment that would be calculated ex-post and paid to any participant that incurred Enablement Losses due to the provision of FCESS.
- Option 2 would set a much higher price cap, allowing participants to submit offer prices that included any forecast Enablement Losses that they may incur in future Dispatch Intervals.
- Option 3 includes no price caps for the FCESS markets.

The three options essentially differ in how a facility would recover any Enablement Losses if these occur – Option 1 uses an ex-post calculation and payment (the FCESS Uplift Payment), whereas Options 2 and 3 require Market Participants to estimate Enablement Losses ex-ante and to include these in FCESS offers.

To assess the feasibility and operation of these options, EPWA has included a series of case studies at Appendix B, focused on the edge case of a facility that faces Enablement Losses. In the various scenarios, one or more facilities is required to run to provide a FCESS Lower service, but would not otherwise be required to run for energy. In each scenario, the cost for the facility to operate at its minimum generation level would not automatically be compensated by the energy or FCESS clearing prices.

These scenarios examine Option 1 through a dispatch cycle, from pre-dispatch (Scenario A) through to unit start-up (Scenario B) and then operation (Scenario C), including variations where multiple facilities are required to run at their minimum generation level (Scenario E), and the introduction of additional competition (Scenario F).

Scenario D considers market outcomes under Option 3, to analyse the impact on consumer costs. The scenarios assume that participants will price their start-up costs in their energy offer prices.

The key observations from the scenarios shown in Appendix B and additional sensitivity analysis are:

1. The WEM Dispatch Engine (WEMDE) should be able to select and dispatch a facility with high energy offer prices but a lower minimum generation level, in preference to a facility with lower offer prices but a higher minimum generation level.
    - This is due to WEMDE ’s objective function, which seeks to maximise the value of trade, through lowering the total system cost.
2. Option 1, with a lower FCESS price cap accompanied by backstop FCESS Uplift Payments, will result in lower market costs for consumers, compared with allowing forecast Enablement Losses to be included in FCESS offer prices and paid to all providers of the relevant FCESS.
3. The formula in the gazetted WEM Rules for the new market[42] will adequately compensate Market Participants, provided they price their energy offers at cost-reflective levels. They would be expected to price their offers in this way during pre-dispatch (prior to synchronisation/ramping) and once the facility is online.

[42] The formula is contained in the glossary definition of “Estimated Enablement Losses”.

4. It is expected that participants may incur a small loss during the period of ramping a generator to its minimum generation level, and potentially while ramping down, under Option 1. This occurs because a participant that has been forecast to be needed for FCESS will likely need to price its energy offers at a very low level in order to ensure that it is dispatched on, and to the level at which it can provide the necessary FCESS.
    - However, EPWA considers the materiality of this is likely to be small, lasting for only one or two dispatch intervals while a gas turbine is ramped from 0 MW to the minimum generation level.
    - EPWA considers that any such loss should be able to be recovered through FCESS offer prices, as a start-up cost, noting that the price cap under Option 1 would include a margin and be rounded up.
5. Once a participant is dispatched and has the ability to receive the FCESS Uplift Payment, it could potentially manipulate the size of this payment by increasing its energy offer prices. However, it is intended that this behaviour would come to the attention of the ERA through the remainder of the MPM framework.
6. Sensitivity analysis of the scenarios suggests that a participant would lose money if it sought to bring a facility online in order to take advantage of the FCESS Uplift Payment. An offline facility would need to lower its offer prices to be dispatched and to remain dispatched, reducing one or both of the FCESS clearing price and the FCESS Uplift Payment that it would receive.

Option 1: Single FCESS Price Cap (with uplift payments)

Under Option 1, a single FCESS price cap would apply to all FCESS markets, set at the highest reasonable cost of provision of any FCESS (excluding opportunity costs) plus a margin, rounded up. This differs from the Taskforce's Proposed Design in the Information Paper as it does not contemplate Market Participants including opportunity costs into offers, and includes a separate FCESS Uplift Payment to compensate Enablement Losses.

Under Option 1 the FCESS price cap is the maximum price for FCESS offers, but the clearing price will be allowed to exceed the FCESS price cap to allow compensation of opportunity costs consistent with the planned application of the WEMDE dispatch algorithm. The table below describes a single FCESS price cap and assesses this against the Guiding Principles.

<table>
<tr><th>Description of Option</th><th>Issues and Assessment against objectives</th></tr>
<tr><td>Key Components</td><td>Principle 1: Efficient recovery of costs; protection of consumers</td></tr>
<tr><td rowspan="3">The ERA would determine the FCESS price cap based on estimates of reasonable operating costs for the most expensive FCESS provider(s) in the SWIS.
The price cap would be reviewed on a three-yearly basis. This reduced review frequency is enabled in part by the inclusion of a margin, and by rounding up the result.
The rounding increment will be set at a level that is appropriate to the estimated</td><td>This option allows full recovery of the marginal costs of providing FCESS, including opportunity costs.
Maximises protection of consumers against extraction of abnormal profits.</td></tr>
<tr><td>Principle 2: Ex-ante certainty; reduced investigation and compliance</td></tr>
<tr><td>This option connects the price cap to operating costs, consistent with the Market Power Test, supporting ex-ante certainty and reinforcing the other elements of the MPM framework.</td></tr>
</table>

level of the FCESS price cap, potentially to the nearest $50/MW (or MWs for RoCoF Control Services) • There will be potential for indexation within the review cycle (related to inflation and/or fuel costs). • There will be potential also for a 're-opener' mechanism for an in-cycle determination of the energy price cap, which may be initiated by the ERA unilaterally, or on participant request if there is a material change to generator composition in cycle (for example, the retirement of the highest cost Facility) • A separate FCESS Uplift Payment is available to compensate Enablement Losses – this is likely to take the form of an automated uplift payment (similar to Energy Uplift Payments), but could also be an on-application compensation payment (similar to direction compensation in the NEM).	• Scrutiny of FCESS Uplift Payments would be required as part of the ERA's monitoring of the efficiency of FCESS markets.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Increased regulatory effort may be required, relative to Options 2 and 3, to perform the three-yearly review of the price cap, though this should be able to be drawn from the ERA's analysis supporting SESSM arrangements.
	Principle 4: Suitable for ongoing review to account for a changing market
	• Provisions for indexation and in-cycle reviews allow for adaptation to changing circumstances.

Option 2: High FCESS price cap

Under Option 2, a FCESS price cap would be set high to allow forecast unrecoverable Enablement Losses to be included in offers in all circumstances. The price cap would apply to offers and clearing prices, with no separate compensation for Enablement Losses or uplift payment.

The table below describes a high FCESS price cap and assesses this against the Guiding Principles.

Description of Option	Issues and Assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• The price cap formula would be set out in the WEM Rules and would be set at the higher of (a) the maximum opportunity cost of providing FCESS (energy price cap less energy price floor); and (b) amortised costs not recovered in the energy market for a facility running at min-gen to provide its maximum FCESS capability. • The determination processes and review frequency would be the same as under Option 1.	• Allowing Market Participants to include forecast unrecoverable Enablement Losses in FCESS offer prices may result in Market Participants being compensated even where these losses do not eventuate for any Facility in the market. • This approach may also allow for double-payment of start-up costs, where these are priced into both energy market offers and FCESS offers (as forecast Enablement Losses). • Where a facility incurs Enablement Losses through providing FCESS, it is arguable that only that Facility requires compensation – not all providers, especially because the incidence of this is expected to reduce over

• Option 2 would require a FCESS price cap that may be orders of magnitude greater than Option 1. • It would be necessary for the ERA to closely scrutinise offers to ensure that only reasonable forecast losses were included by Market Participants.	time.[43] Under Option 2, all providers would be compensated through a higher clearing price, at higher cost to consumers. • In some cases, this option may not allow for full recovery of Enablement Losses if a facility is not enabled for its full FCESS capability.
	Principle 2: Ex-ante certainty; reduced investigation and compliance
	• It is doubtful whether this option provides greater ex-ante certainty of recovering costs – the inclusion of forecast losses in FCESS offer prices will likely require ERA monitoring and investigation comprising detailed analysis of the contemporaneous information that informed participants' decision-making. • This option may require greater ERA monitoring and investigation activity as compared to Option 1, as the ERA would need to focus on whether Enablement Losses were appropriately included in FCESS offers. • This is likely to lead to higher uncertainty for participants relative to an automatic uplift payment mechanism.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Regulatory effort is reduced through the removal of the requirement to periodically review the price cap. • However, it is likely this benefit is offset by the greater uncertainty participants would face given the potentially increased scope of the ERA's monitoring and investigation of FCESS offers.
	Principle 4: Suitable for ongoing review to account for a changing market
	• Adjustment of the price cap would require a rule change process.

[43] If these losses were priced in FCESS offers, they would likely flow into the clearing price, such that all providers receive a payment for that cost. Alternatively, under Option 1, only individual facilities would be compensated for Enablement Losses where these are incurred.

Option 3: No FCESS price cap

Under Option 3, no price cap would apply to FCESS offers or FCESS market clearing prices. The table below describes assesses no FCESS price cap against the Guiding Principles.

Description of Option	Issues and Assessment against objectives
Key Components	*Principle 1: Efficient recovery of costs; protection of consumers*
• Clearing prices will allow for compensation of opportunity costs consistent with the application of the WEMDE dispatch algorithm. • There would be no FCESS Uplift Payment to compensate Enablement Losses as Market Participants would be expected to forecast and include these in their FCESS offers. • It would be necessary for the ERA to closely scrutinise offers to ensure that only reasonable forecast losses were included by Market Participants in their FCESS offers.	• The protection of consumers under this option would rely entirely on ERA monitoring and enforcement under other elements of the MPM Framework. • Given this option would provide no limit to FCESS offers or prices, it provides less protection for consumers as compared to the status quo and other options. • Similar to the issues raised with regard to Option 2, allowing Market Participants to include forecast unrecoverable Enablement Losses in FCESS offer prices may result in Market Participants being compensated in excess of actual costs. • This option would not restrict Market Participants' ability to recover their efficient costs.
	Principle 2: Ex-ante certainty; reduced investigation and compliance
	• Similar to Option 2, an uncapped market would rely heavily on the ERA to ensure efficient consumer outcomes. This may require greater ERA monitoring and compliance, potentially resulting in reduced certainty for Market Participants.
	Principle 3: Proportionality of competition benefits to regulatory effort and costs
	• Regulatory effort is reduced through the removal of the requirement to periodically review the price cap. • However, it is likely this benefit is offset by the increased scope of the ERA's monitoring and investigation of FCESS offers.
	Principle 4: Suitable for ongoing review to account for a changing market
	• This option would require no review or changes, outside of considering the suitability of the approach itself.

Summary of analysis against guiding principles

Principle 1: Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power

EPWA considers that Option 1 is likely to provide the greatest protection for consumers against extraction of abnormal profits relative to Options 2 and 3. This is because Options 2 and 3 assume Market Participants will forecast unrecoverable Enablement Losses and build these into their FCESS offer prices (so requiring a cap to be high enough to accommodate this, or to have no cap).

This assumption can have various adverse outcomes, including compensating Market Participants for losses that did not eventuate, and double-payment of start-up costs across multiple markets. Further, all FCESS providers would be compensated under Options 2 and 3 for the Enablement Losses incurred by one provider, providing a windfall gain at the expense of consumers.

Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation

EPWA considers that ex-ante certainty is supported through the development of a consistent MPM framework, promoting confidence in the operation of the framework.

EPWA considers that Option 1 better satisfies this Guiding Principle as it retains a reference to operating costs, consistent with the Market Power Test, while Options 2 and 3 lack this reference.

Options 2 and 3 also have less certainty around when and how the ERA will monitor and investigate FCESS offers. The expectation that Market Participants will include forecast Enablement Losses in FCESS offer prices will likely, at least initially, require ERA investigation or monitoring of all offers, and will require detailed analysis of the contemporaneous information that informed participants' decision-making. This is likely to offer Market Participants less certainty compared to Option 1.

Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs

Option 1 will require greater regulatory effort relative to Options 2 and 3, to perform the three-yearly review of the price cap. However, EPWA notes that a periodic review, supported by a public consultation process, may provide information that is valuable for the rest of the MPM framework and broader market monitoring processes, and that the analysis would be necessary for the ERA's SESSM functions.

It is likely that any benefit under Options 2 and 3 from the removal of the three-yearly price cap setting process will be more than offset by the increased reliance on the ERA to monitor and investigate FCESS offers and the potential uncertainty associated with such activities.

Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions

On balance, EPWA considers that the potential for indexation and in-cycle determinations under Option 1 provides sufficient flexibility for adjustment to changing circumstances as compared to the status quo arrangements.

Option 2 allows for the price cap to be amended through the rule change process, EPWA considers this less flexible than the adjustment mechanisms under Option 1.

Option 3 requires no price limits setting process.

Options	Guiding Principle 1	Guiding Principle 2	Guiding Principle 3	Guiding Principle 4
1. Single FCESS price cap (with uplift payments)	✓	✓	✓	✓
2. High FCESS Price Cap	✗	✗	✗	✗
3. No FCESS Price Cap	✗	✗	✗	✓

Table 6: Summary of options for FCESS price caps against the guiding principles

Recommended Option

Option 1 – lower FCESS price cap accompanied by uplift payment

EPWA's initial view is that Option 1 (the lower FCESS price cap accompanied by a FCESS Uplift Payment) is the most consistent with the Guiding Principles. This option provides appropriate protection against extraction of abnormal profits, while allowing for recovery of efficient costs. It also connects the FCESS price cap to operating costs, promoting ex-ante certainty and confidence in the MPM framework.

Option 2 and 3 are considered likely to provide greater scope for extraction of abnormal profits, and result in higher costs for consumers. Even under Option 2, despite the higher price cap, circumstances may still arise in which recovery of efficient costs is constrained. EPWA does not consider the risks posed by Option 2 and 3 are outweighed by the benefits associated with lower regulatory burden.

Consultation Questions

8. Do stakeholders agree with EPWA's assessment of the options for the FCESS price cap and its initial view on options?

3.5.5 FCESS Price Floor

Options Analysis

It is common for frequency control service markets to have a price floor at $0/MW. This is the case for the current LFAS Market in the WEM, the Frequency Control Ancillary Service (FCAS) markets in the NEM, and similar services in other jurisdictions including California and Texas. EPWA has not identified any circumstances in which a provider would wish to pay to provide a FCESS. On this basis, EPWA has not considered options other than setting the price floor at $0/MW for FCESS.

Recommended Option

EPWA's initial view is that the FCESS price floor should be set at $0/MW (or MWs for the RoCoF Control Service). This value would be prescribed in the WEM Rules.

EPWA considers that this approach is unlikely to constrain the recovery of efficient costs (Principle 1), given that no circumstances have been identified in which a provider would wish to offer at negative prices; and minimises regulatory effort (Principle 3) by fixing the price floor in the WEM Rules for a parameter for which flexibility does not appear to be necessary.

Consultation Questions

9. Do stakeholders agree with EWPA's initial view on the FCESS price floor?

4. Proposed Design

4.1 Overview of the MPM Framework

General Trading Obligations and the Market Power Test

Under the proposed MPM Framework, **General Trading Obligations** would be contained in the WEM Rules. These would apply to the STEM and RTM (including FCESS markets). These obligations would apply to all Market Participants, regardless of whether a Market Participant is 'caught' under Stage 1 of the Market Power Test (the Gateway Test).

- An Offer Construction Obligation would replace the SRMC obligation that currently operates in the STEM, Balancing Market, and LFAS market. It would require a Market Participant to offer prices in its Submissions that reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer.
- The Trading Conduct Obligation would be similar to existing good faith requirements and misleading conduct prohibitions. It would require that a Market Participant must not – in making a Submission, or supplying electricity – engage in conduct that:
    - is false, misleading, or likely to mislead;
    - is undertaken in bad faith; or
    - distorts or manipulates market prices.

The ERA would develop and publish an Offer Construction Guideline and Trading Conduct Guideline setting out its interpretation of these obligations, and provide examples of compliant and non-compliant offers and conduct

The ERA would be required in the WEM Rules to undertake a three-part **Market Power Test**. The Market Power Test is intended to identify where a Market Participant has exercised market power through offers made in Submissions in the STEM and RTM, and such offers have resulted in inefficient market outcomes.

FCESS markets would not be subject to the Market Power Test. It is proposed that MPM for the FCESS markets relies on the SESSM process prescribed under the new WEM Rules, in combination with the General Trading Obligations that will apply to all Market Participants.

The three-part Market Power Test will consist of:

1. A **Gateway Test (Stage 1)** (section 4.3) that is used to identify the presence of Portfolio market power, both in the general market (the Standard Gateway Test); and behind binding constraints (the Constrained Gateway Test).
    - The Standard Gateway Test would identify Portfolios with market power using a static concentration ratio where the the percentage of a Portfolio's total sent out capacity (in MW) relative to the total system sent out capacity is 10 percent or greater. This version of the test will be conducted twice yearly.
    - The Constrained Gateway Test would identify Portfolios with market power behind binding constraints (Constrained Portfolios) where Energy Uplift Payments have been made in respect of Constrained Portfolio Facilities in excess of 10% of Dispatch Intervals when the relevant constraint was binding. The test will be conducted over both a rolling test window (e.g. 3 months) and a fixed assessment period (e.g. 1 week). Any Constrained Portfolio that receives an Energy Uplift Payment in at least 10% of relevant Dispatch Intervals in the test window or the assessment period will be deemed to have failed the Constrained Gateway Test.

2. **Offer Assessment (Stage 2)**[44] (fomerly part of the 'safe trading envelope' – Section 4.3.54.3.5) will require the ERA to review the offers made in respect of Facilites within a Portfolio 'caught' by the Gateway Test, and make a determination as to whether: *the prices offered by a Market Participant in a Submission(s) for a Facility appear to not reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer.*
3. A **Market Impact Test (Stage 3)**[45] (Section 4.3.6) will require the ERA to assess the market impacts of offers that have 'failed' Stage 2 of the Market Power Test to determine whether those offers resulted in *inefficient market outcomes*. This is expected to consider:
    a. Changes to market prices or payments that are likely to have been caused by the offers which have 'failed' the Offer Assessment stage of the Market Power Test.
    b. Changes to the quantities scheduled in respect of Market Participants in the STEM Auction or the Dispatch of Facilities in the RTM as a result of offers that have 'failed' the Offer Assessment stage of the Market Power Test.

The ERA will be required to set out how it expects to consider the assessment requirements under Stages 2 and 3 of the Market Power Test in a guideline (the Offer Construction Guideline) and its Market Power Monitoring Protocol.

Enforcement consequences of the Market Power Test and additional information requirements

Where the offers of a Market Participant are determined by the ERA to have 'failed' all three stages of the Market Power Test, the ERA may undertake relevant investigation and enforcement actions under the WEM Rules for breach of the Offer Construction Obligation.

Where offers have been assessed via the Market Power Test and passed either Stage 2 or 3, the ERA will be prohibited from engaging in an investigation or enforcement activities for breach of the Offer Construction Obligation in relation to those particular offers. Offers not assessed under the Market Power Test, and all other conduct of the Market Participant, would be subject to ERA investigation and enforcement against the General Trading Obligations and other requirements in the WEM Rules.

Where a Portfolio is caught by the Gateway Test (Standard or Constrained), any associated Market Participant(s) will be required, within three months of an ERA notification, to implement additional processes and systems (including enhanced internal governance arrangements for trading conduct compliance monitoring and additional record keeping on changes to offer prices and quantities) to ensure compliance with the General Trading Obligations.

Energy and FCESS Price Limits

Energy and FCESS price limits will be set by the ERA as a backstop mechanism in the framework based on a methodology contained in the WEM Rules.

In relation to the **energy price limits**:

- The ERA would be required to determine the **energy price cap** based on estimates of reasonable operating costs for the most expensive facility or facilities in the SWIS, with an

[44] This component of the Market Power Test was part of a component referred to as the 'Safe Trading Envelope' in the Taskforce Information Paper, this has been amended to reflect that this component will now focus on assessment of offers only, and not other conduct.

[45] This component of the Market Power Test was previously referred to as the Effects Test in the Taskforce Information Paper, and has been changed to Market Impact Test to avoid an association with the assessment of competition effects under the Competition and Consumer Act 2010.

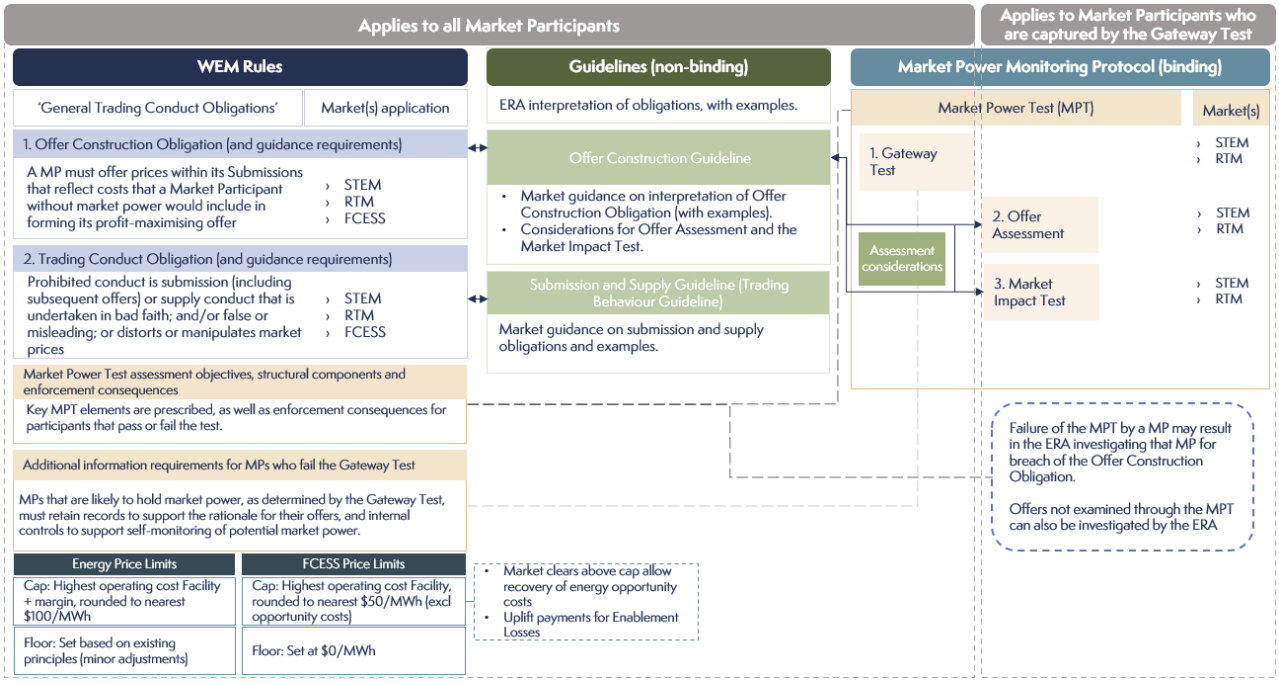
additional margin, rounded up to the nearest $100/MWh. No specific technology would be prescribed in the WEM Rules.

  - The price cap would be reviewed and calculated once every three years. It would be indexed within the review cycle based on a prescribed inflation index, and the ERA would have discretion to nominate additional indexation to account for changes in average fuel prices where relevant and practicable.
  - The WEM Rules would provide the ERA discretion to make an in-cycle determination of the energy price cap in exceptional circumstances. This process would be initiated by the ERA unilaterally, or on participant request.
- The **energy price floor** would be reviewed every three years, according to the processes and principles set out in section 6.20 of the WEM Rules.[46]

In relation to the **FCESS price limits:**

- The ERA would be required to determine the **FCESS price cap** based on estimates of reasonable operating costs for the most expensive FCESS provider(s) in the SWIS, plus a margin, rounded to the nearest $50/MW (or MWs for the RoCoF Control Service).
- The FCESS market clearing price would be able to exceed the set price limit to allow compensation of energy opportunity costs. Arrangements would also provide for a separate FCESS Uplift Payment to compensate Market Participants for Enablement Losses where appropriate.
- The WEM Rules would provide the ERA discretion to make an in-cycle determination of the FCESS price cap in exceptional circumstances. This process would be initiated by the ERA unilaterally, or on participant request.
- The price cap would be reviewed and calculated on a three-yearly basis. It would be indexed within the review cycle based on a prescribed inflation index, and the ERA would have discretion to nominate additional indexation according to average fuel prices where relevant and practicable.
- The **FCESS Price floor** would remain at $0/MWh, consistent with existing arrangements.

Figure 3: Illustration of Proposed Design for the MPM Framework



[46] Some minor changes to these rules may be necessary to reflect lessons learned from the ERA's recent reviews, and an ability for in-cycle review similar to that for the energy price cap.

4.2 General Trading Obligations

4.2.1 Overview of General Trading Obligations

The proposed MPM framework would remove the existing prohibition on a Market Participant offering prices in the STEM, Balancing Market and LFAS market in excess of its reasonable expectations of SRMC where such behaviour relates to market power.[47] This obligation would be replaced with a requirement, the Offer Construction Obligation, that a Market Participant who has market power offers prices in Submissions (made for STEM, RTM or the FCESS market) that reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer.

The proposed changes would also refine existing obligations that apply in the Balancing and LFAS markets that currently require the making of good faith offers; and prohibit acting in a manner that may lead other participants to be misled or deceived, and that prohibit influencing constrained prices and quantities in the Balancing Market.[48]

Refinements to existing obligations would prohibit conduct related to the making of Submissions for the supply of electricity that: was in bad-faith; false, misleading, or likely to mislead; or distorted or manipulated prices in the market.

A summary of the proposed General Trading Obligations, and interpretation and enforcement considerations are provided in Table 7 below.

General Trading Obligations would apply to the STEM and RTM (including FCESS markets), and to all Market Participants, regardless of whether the Facilities registered to that Market Participant are within a Portfolio that is 'caught' under Stage 1 of the Market Power Test (the Gateway Test).[49]

The application of General Trading Obligations to Market Participants who 'pass' all elements of the Market Power Test are discussed in section 4.2.2 below. In summary, where the relevant offers of a Market Participant have been assessed through the Market Power Test and have 'passed', the ERA would be unable to commence investigation or compliance activities in relation to those offers.

Offer and conduct not assessed through the Market Power Test would still be subject to potential investigation and enforcement action by the ERA, for breach of the General Trading Obligations. This is to ensure the ERA has the necessary flexibility to examine potential conduct related to market power not identified through the Gateway Test.

4.2.2 Accompanying Guidelines

The WEM Rules would require that the ERA consult on and publish guidelines setting out how the ERA interprets the General Trading Obligations, and provide a range of appropriate examples of compliant and non-compliant conduct (the Offer Construction Guideline and Trading Conduct Guideline). The ERA would be able to update the guidelines following reasonable consultation with stakeholders.

[47] WEM Rules (1 March 2022), clauses 6.6.3; 7A.2.17; 7B.2.16.

[48] WEM Rules (1 March 2022), clauses 7A.2.13; 7B.2.11. for the purpose of influencing the determination of the Constrained Off Compensation Price, the Constrained Off Quantity which the Facility may provide, the Constrained On Compensation Price or the Constrained On Quantity which the Facility may provide.

[49] For the purposes of this Consultation Paper, a Portfolio is considered to be one or more Facilities under the ownership of an entity or related entities

Table 7: General Trading Obligations

Description of Obligation	Interpretation and enforcement considerations
Offer Construction Obligation	
• The fundamental requirement of the Offer Construction Obligation would be for a Market Participant to offer prices within its Submissions that reflect costs that a Market Participant without market power would include in forming its profit-maximising offer. • The obligation would apply to the STEM and RTM, including FCESS markets. • The Offer Construction Obligation would replace SRMC obligations that currently operate in the STEM (cl 6.6.3), Balancing Market (cl 7A.2.17), and LFAS market (cl 7B.2.16).	• It is expected that the wording of this obligation would require the ERA to consider, in determining whether there had been a breach of the WEM Rules, whether a Market Participant with market power has offered prices that do not reflect all costs that a Market Participant without market power would include in forming its profit-maximising offer. • The ERA would be required to issue an Offer Construction Guideline that would include its interpretation of the obligation (see section 3.2).[50]
Trading Conduct Obligation	
• The fundamental requirement of the Trading Conduct Obligation would be that Market Participants must not – in making a Submission, or supplying electricity – engage in conduct that: ○ is false, misleading, or likely to mislead; ○ is undertaken in bad faith; or ○ distorted or manipulated market prices. • The obligation would apply in the STEM and RTM, including FCESS markets. • The Trading Conduct Obligation would refine the current WEM Rules that require Market Participants in the Balancing Market (cl 7A.2.13) and LFAS market (cl 7B.2.11) to make Submissions in good faith; not act in a manner intended to lead, or that may lead, to another Rule Participant being misled or deceived as to the existence of a material fact related to the relevant market; or (in the Balancing Market) attempt to influence constrained prices and quantities.	• The ERA would be required to issue a Trading Conduct Guideline outlining its interpretation of the obligation. It would also be required to provide examples of compliant and non-compliant conduct. • The ERA would have discretion to take into account: [51] ○ Any patterns of behaviour related to the making of subsequent Submissions; ○ The timing and accuracy of notifications of Forced Outages, Internal Constraints, External Constraints, and any information related to these; and ○ Compliance with Dispatch Instructions.

[50] Consistent with existing arrangements in the WEM Rules, and the *Competition and Consumer Act 2010* (Cth), there is currently no intention to define Market Power in Rule Changes. The ERA would be required to issue guidance (see section 4.2.1) describing how it would interpret General Trading Obligations.

[51] These matters are currently able to be considered by the ERA in relation to compliance with obligations under Chapter 7A of the current WEM Rules (clause 7A.2.18)

4.3 The Market Power Test

The Standard Gateway Test

The proposed model for the Standard Gateway Test would identify Portfolios 'caught' by the test via a static concentration ratio based on the percentage of a Portfolio's total capacity (in MW) relative to the total system capacity.[52] It is proposed that the threshold percentage be set at 10% of total system capacity, which will be defined as the sum of the sent out capacities of all Portfolios. Under current market conditions, this threshold equates to a Portfolio of around 600MW.[53]

For clarity, this formulation of the Gateway Test applies on a forward basis only. There is no 'true up' ex-post as the running times for the test (discussed below) should ensure that an ex-post assessment would not yield a different result to the forward assessment.

For the purposes of the test, the ERA would be required to group all registered Facilities in the WEM into Portfolios, being the Facility or Facilities owned by an entity or related entities. The ERA would then calculate the total capacity of each Portfolio based on the maximum sent out capacity of the Facility or Facilities within that Portfolio. The ERA would be required to calculate the total capacity of each Portfolio as a percentage of total system capacity (the sum of the sent out capacity of all Facilities).

Both Facility capacity and total system capacity would be based upon Facility sent out capacity data published by AEMO.[54] It is proposed that the sent out capacity of Facilities would not be modified (e.g. reducing the capacity of intermittent generation based on capacity factor). This is because EPWA considers that there will be times where intermittent generation will be producing at full capacity and so the full capacity should be taken into account in assessing whether the Portfolio is capable of exercising market power.

The Standard Gateway Test would be run every six months, and will be coordinated with Reserve Capacity testing. As such it is proposed that the Gateway Test be run following both summer and winter testing periods.[55]

The Market Participant, or Market Participants, responsible for the Facilities within a Portfolio caught by the Gateway Test will be notified by the ERA. As described above, this will result in the offers made by Market Participants for relevant Facilities being subject to Offer Assessment under Stage 2 of the Market Power Test (with further assessment under Stage 3 if necessary). It will also place requirements on those Market Participants to keep additional information, and implement internal controls as described below.

The requirement for the ERA to conduct the Gateway Test as part of the Market Power Test, and the high-level requirements for doing so, would be prescribed in the WEM Rules. The ERA would also be required to develop and publish a WEM Procedure outlining a detailed structure and methodology for the test in its Market Power Monitoring Protocol.

[52] The Standard Gateway Test refers to the test that will apply to the broader market. This is opposed to the Constrained Gateway Test that will apply to Portfolios operating behind binding constraints.

[53] Current registered capacity in the WEM is approximately 5800MW

[54] https://aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/data-wem/market-data-wa

[55] See https://aemo.com.au/-/media/files/market-it-systems/wem/2021/wems-339-and-rcm-120-release-notes.pdf?la=en. The test could occur 30 days after each testing period: 30 October and 30 April may be appropriate dates.

4.3.2 Assessment of Market Power behind binding constraints: The Constrained Gateway Test

EPWA considers that Market Participants that are offering Facilities operating behind binding Network Constraints (the Constrained Portfolio) may have a significant opportunity to exercise market power. While the Constrained Portfolio will not impact on the overall market clearing price, a significant monetary advantage can be gained where the Constrained Portfolio is in a dominant position behind the binding constraint. This is due to the Constrained Portfolio being in a position to make unreasonably high offers and receive Energy Uplift Payments.

Using the same 10% Portfolio concentration ratio of total market capacity as proposed for the broader market is unlikely to be a suitable method to identify market power in constrained conditions, given it will not consider the relative concentration of Constrained Portfolios.

In some situations it may not capture *any* Facilities operating behind a Network Constraint. In order to capture Constrained Portfolios using a CR, it would be necessary to undertake a significant amount work to identify the relevant CR threshold level for each actual and potential binding constraint and tailor the threshold for each.

It is proposed that an alternative Gateway Test is run behind individual Network Constraints to identify whether the RTM Submissions made by Market Participants for Facilities operating behind those constraints should be assessed further under the Market Power Test.

The proposed test would capture a Facility or Facilities within a Portfolio where:

- the facilities are behind an identified constraint; and
- Energy Uplift Payments have been made in respect of those Facilities in excess of 10% of Dispatch Intervals when the relevant constraint was binding.

The offers made for those Facilities would be subject to further assessment under Stage 2 of the Market Power Test.

EPWA expects that the Constrained Gateway Test will require the ERA to:

- identify where Energy Uplift Payments have been made in relation to Network Constraints;
- identify the Dispatch Intervals over which those Network Constraints were binding;
- identify the Dispatch Intervals in which Energy Uplift Payments were provided in respect of relevant Facilities within a Portfolio behind the identified Network Constraints;
- for each Constrained Portfolio calculate, as a percentage, the Dispatch Intervals the Facilities within each Constrained Portfolio (in aggregate) received Energy Uplift Payments relative to the total number of Dispatch Intervals in which the identified Network Constraint bound during both a rolling test window (e.g. 3 months) and a fixed assessment period (e.g. 1 week).
- Any Constrained Portfolio that receives an Energy Uplift Payment in at least 10% of relevant Dispatch Intervals in either (or both of) the test window or the fixed assessment period will be deemed to have failed the Constrained Gateway Test.

It will not be possible to accurately forecast when Network Constraints will occur, as such the Constrained Gateway Test will only be conducted on an ex-post basis. Additional information and internal controls requirements would apply to Market Participants caught by the Constrained Gateway Test based on the ex-post assessment.

The ERA would be required to conduct the Constrained Gateway Test on an ex-post basis, periodically (for example, every three months).

As with the Standard Gateway Test, the high-level requirements would be prescribed in the WEM Rules, with the ERA required to develop and publish a WEM Procedure (the Market Power Monitoring Protocol) outlining a detailed structure and methodology for the test.

4.3.3 The Market Power Test in FCESS Markets

It is proposed that MPM for the FCESS markets rely on the SESSM process provided for under the new WEM Rules, in combination with the General Trading Obligations that will apply to all Market Participants as described in Section 4.2 above. It is not proposed that the Gateway Test, or other components of the Market Power Test, be applied to the FCESS markets. This will avoid duplication in regulatory effort while ensuring that the ERA can bring appropriate enforcement action against individual Market Participants for breach of the General Trading Obligations.

The SESSM is provided for in section 3.15A of the new WEM Rules. It provides a means for procurement of FCESS contracts to increase certainty, mitigate inefficient market outcomes, support new market entry, and avoid a shortfall in ESS accreditation and participation.[56]

The ERA may trigger the SESSM where, based on the Coordinator of Energy's review of the ESS process and standards, or its own monitoring process, it 'reasonably considers that Real-Time Market outcomes are not consistent with the efficient operation of the RTM in respect of FCESS or the Wholesale Market Objectives.'[57]

The ERA must document in a WEM Procedure the process it will undertake to identify inefficient RTM outcomes, which may include:

- comparing individual Facility offers of FCESS with offers of FCESS from similar Facilities; including:
    - expected or known costs for that Facility;
    - offers from the same Facility in different time periods;
    - historic offers of FCESS in the Real-Time Market; and
    - the FCESS offer construction guidelines published by the ERA;
- comparing existing Facility costs with potential new facility entrant costs;
- an analysis of the information received from expressions of interest forms submitted in accordance with section 3.15B[58]; and
- comparing FCESS market outcomes with other relevant jurisdictions.[59]

It would also be desirable for the ERA to publish internal pricing benchmarks for FCESS markets which, when approached or exceeded, would trigger the SESSM (consistent with the Taskforce recommendation in their May 2021 Information Paper.[60]

When the ERA triggers the SESSM it must publish:

- the rationale for its conclusion that market outcomes may not be consistent with efficient market operation;
- a view on whether the inefficiency in the market is restricted to certain time intervals (e.g. day of week, time of year), or is present at all times; and
- an estimate of the difference in cost of ESS under current market outcomes and under efficient market operation.[61]

[56] See Energy Transformation Taskforce, Supplementary ESS Procurement Mechanism Information Paper, 24 April 2020

[57] Companion WEM Rules (1 February 2022), clause 3.15A.2

[58] From New WEM Commencement Day, at least once every two years, AEMO must conduct a Frequency Co-optimised Essential System Service expression of interest process. This will provide AEMO and the ERA with information on facility types, lead times to develop and commission the facility, the likely network location, quantities of each FCESS service that the facility can provide and the various costs to provide a service. See Companion WEM Rules (1 February 2022), Section 3.15B

[59] Companion WEM Rules (1 February 2022), clause 3.15A.5

[60] See Improvements to Market Power Mitigation Mechanism: Information Paper, 21 May 2021

[61] See Supplementary ESS Procurement Mechanism Information Paper, 24 April 2020

4.3.4 Additional Information and Internal Control Requirements

Where a Portfolio is caught by the Standard Gateway Test, any associated Market Participant/s would be required within three months of a notification being issued by the ERA to implement addition processes and systems (including internal governance arrangements for trading conduct compliance monitoring and record keeping on changes to offer prices and quantities) to ensure compliance with their trading obligations.

Where a Constrained Portfolio is caught by the Constrained Gateway Test, the same obligations would apply ex-post and within three months of a notification being issued by the ERA.

The additional processes and systems are to be outlined in guidance and WEM Procedure (the Market Power Monitoring Protocol) to be developed and published by the ERA (other participants may voluntarily implement these processes).

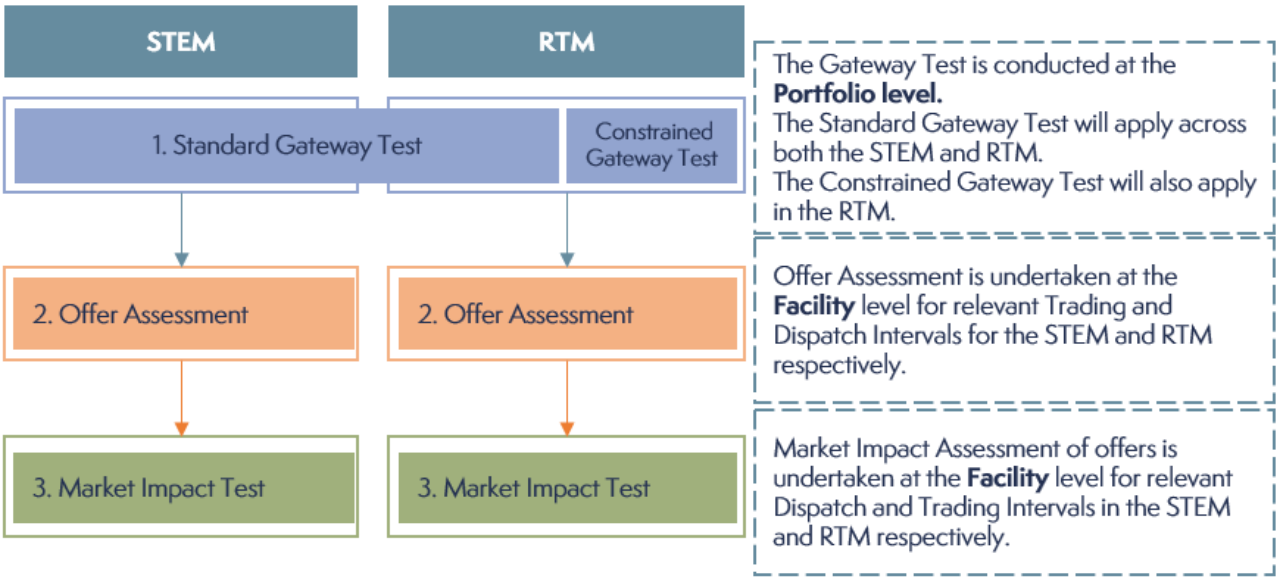
4.3.5 Offer Assessment under Stage 2 of the Market Power Test

Stage 2 of the Market Power Test will consist of an assessment of the offers made in respect of Facilities in a Portfolio caught by the Gateway Test. Offer Assessment will be conducted on the basis of requirements within the WEM Rules, and the Offer Construction Guideline and Market Power Monitoring Protocol developed and published by the ERA.

As illustrated in Figure 2 below, where a Facility is identified as being within a Portfolio that has been caught by the Gateway Test under Stage 1 of the Market Power Test for either the STEM and/or RTM, the WEM Rules will require the ERA to undertake ex-post Offer Assessment of the prices offered within Submissions (and, in the case of the RTM, subsequent Submissions) made by the relevant Market Participant in respect of the Facility for relevant Trading Intervals.[62] Relevant Trading Intervals are those in which the Portfolio within which the Facility sits is caught by the Gateway Test (this would include the standard Gateway Test and the Gateway Test to apply behind binding constraints – see section 4.3.2).

Where there are multiple Facilities within the relevant Portfolio, Offer Assessment will be conducted for all offers made in respect of those Facilities for relevant Trading Intervals.

Figure 2: Offer Assessment within the stages of the Market Power Test



[62] In the case of the RTM, Submissions will be assessed for all Dispatch Intervals within the relevant Trading Intervals.

In respect of the FCESS markets, as described in Section 4.3.3 above, the framework would rely upon relevant monitoring and review of inefficient Real-Time market outcomes,[63] with potential determination by the ERA to trigger the SESSM process under clause 3.15A.2,[64] and/or investigation by the ERA for breach of the General Trading Obligations.

Offer Assessment Criteria

Where Offer Assessment applies, the WEM Rules will require the ERA to make a determination as to whether: *the prices offered by a Market Participant in a Submission(s) for a Facility appear to not reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer*. The ERA would also be required to perform Offer Assessment in accordance with the processes set in a WEM Procedure (the Market Power Monitoring Protocol).

Guidance (the Offer Construction Guideline) would also set out how the ERA would expect to treat offer components. EPWA considers that assessment of prices based on this principle would be sufficient to capture both prices above and below reasonable expectations of production costs, and so would have the capacity to capture instances of predatory pricing.

The WEM Rules will require the ERA to develop and publish the Offer Construction Guideline setting out how the ERA expects to consider the following matters as part of its assessment:

- All start-up and shutdown costs of a Facility, including the costs of fuel, water, internal power, additional labour and lost asset value directly attributable to the startup or shutdown;
- Variable costs of production, including:
    - Fuel costs;
    - Operational and maintenance costs that are attributable to the production of output;
    - Unplanned outages costs;
    - The value of water;
- Any relevant regulatory costs or allowances; and
- Reasonable amortisation of costs across Trading and Dispatch Intervals.

(**Offer Components**)

The Market Power Monitoring Protocol would document the process the ERA would follow in carrying out the Market Power Test, including the ERA Offer Assessment.

New information gathering powers or processes (or amendments to existing arrangements), may need to be inserted into the WEM Rules to allow the ERA to obtain necessary information for assessment of offers.[65]

Where the ERA determines that the Submissions made by the Market Participant in respect of the relevant Facility are consistent with the requirements described above, the Market Participant would be deemed to 'pass' the Offer Assessment component of the Market Power Test in respect of the assessed offers.

The offers assessed under the Market Power Test would not be subject to further investigation or compliance action by the ERA. However, conduct and/or offers not assessed through the Offer Assessment stage of the Market Power Test would still be subject to potential investigation and enforcement action by the ERA for breach of the General Trading Obligations.

Where the Market Participant 'fails' Offer Assessment, the ERA would be required to conduct Market Impact Assessment under Stage 3 of the Market Power Test (Section 4.3.6 below). There

[63] Relevant reviews are those undertaken by the Coordinator under clauses 3.15.1A and 3.15.1B (Companion WEM Rules (1 February 2022)).

[64] Consolidated 'Companion' version of the WEM Rules (1 February 2022).

[65] Clause 2.16.6 in the new WEM Rules (February 2022) provides for the ERA to collect additional information from Rule Participants.

would be no requirement for the ERA to inform the Market Participant of its determination in respect of this single element of the Market Power Test until the ERA had determined the Market Participant had failed all stages of the Market Power Test, and was to be investigated in accordance with the monitoring and compliance protocols.

Consultation Framework (Offer Assessment)

The Market Participant responsible for a relevant Facility subject to Offer Assessment under Stage 2 of the Market Power Test (i.e. associated with a Portfolio 'caught' by the Gateway Test) will be provided with the opportunity to request the ERA to provide guidance on:

- a value or values for specific Offer Components identified in the Offer Construction Guideline; and/or
- the methods or processes contained in the Offer Construction Guideline for incorporating cost components into prices and quantities within Submissions (for example: total product cost calculations).

A Market Participant may initiate this process through providing supporting material to the ERA as part of a request.

- Where the Market Participant wished to receive guidance on a value for a specific Offer Component, it would be expected to provide sufficient information related to such matters.
- In cases where the Market Participant wished the ERA to provide guidance on a method or process contained in the Offer Construction Guideline, it would need to provide reasons for doing so and any related information.[66]

The ERA may provide guidance on relevant value or method only where, in its reasonable opinion, such guidance would be consistent with an approach that met the objectives of the Offer Assessment, and not impose an unreasonable or excessive assessment burden on the ERA as compared to the arrangements in the Offer Construction Guideline and/or WEM Procedures.

The WEM Rules would place an obligation on the ERA to consider requests in good faith, and provide guidance within a reasonable timeframe. Prior to providing such guidance, the ERA would be able to request further information from, or consult with, a Market Participant (although there would be no requirement to do so).

There would be no obligation on the ERA to suggest an alternative value or method that it considers would meet the Offer Assessment requirements.

The guidance provided by the ERA would not be binding upon it, or the Market Participant but there would be an expectation that where the Market Participant operated consistently with the guidance provided by ERA, the ERA would take this into account during an Offer Assessment.

4.3.6 The Market Impact Test – Stage 3 of the Market Power Test

Where a Market Participant has made offers:

- for a Facility (or Facilities) within a Portfolio caught by the Gateway Test under Stage 1 of the Market Power Test; and
- the offers made in respect of that Facility (or Facilities) have been determined by the ERA to be inconsistent with Offer Assessment requirements under Stage 2 of the Market Power Test (described in Section 4.3.5 above),

the WEM Rules would require the ERA to assess the market impacts of those offers. As part of this assessment, the ERA would be required to make a determination on whether offers resulted in

[66] EPWA expects that the guidance material the ERA would be required to develop and publish on Offer Assessment would include suitable methods and processes for incorporating Offer Components into prices.

inefficient market outcomes. This is proposed to be called the Market Impact Test (formerly referred to by the Taskforce as the "Effects Test."[67]

This assessment principle is consistent with that underpinning the ERA's decision to trigger the SESSM under clause 3.15A.2 of the new WEM Rules.[68] However, rather than considering the efficiency of offers[69] (as offers will have already been assessed under Stage 2 of the Market Power Test) the objective of the Market Impact Test in this context would be to identify the impact of relevant offers on market completion, market clearing prices and other payments (such as Energy Uplift Payments), as well as quantities scheduled in respect of Market Participants in the STEM Auction, or the Dispatch of Facilities in the RTM.

The ERA, in carrying out this assessment, would be directed in the WEM Rules to consider:

- Any changes to market prices or payments that are likely to have been caused by the non-compliant offer(s).
    - EPWA expects that such assessment would involve a counterfactual assessment of the STEM Clearing Price, the RTM Reference Trading Price and Energy Uplift Payments for each Trading Interval.
    - Generating counterfactual market clearing prices and payment values is likely to involve substituting the non-compliant offers made by the Market Participant with offers that reflect the ERA's expected or known costs for the Facility in order to determine whether the substitution would affect market prices and/or payments.
    - Where counterfactual market clearing prices or payments are different to actual values, it would be necessary to identify whether the change to market clearing prices has contributed to inefficient' market outcomes. To identify such matters the ERA could consider the materiality of the change to clearing prices or payments that occurred as a result of the relevant offers.
- Any changes to the quantities scheduled in in the STEM Auction or the Dispatch of Facilities in the RTM as a result of non-compliant offers.
    - This process would identify whether the non-compliant offers of a Market Participant impacted upon the participation of another Market Participant or Facility in the relevant market.
    - If there were changes to participation that arose by way of the non-compliant offers, it would be necessary for the ERA to consider the immediate impacts, as well as longer term market efficiency impacts of such outcomes. This assessment scope should be sufficient to capture predatory pricing.

The ERA would be required to publish guidance setting out how it would conduct the assessment required under the Market Impact Test, taking into account the objectives in the WEM Rules. As with other elements of the Market Power Test, the process undertaken by the ERA to conduct the Market Impact Test would be published in a WEM Procedure.

[67] The terminology of Effects Test in the Taskforce Information Paper has been changed to Market Impact Test to avoid an association with the assessment of competition effects under the Competition and Consumer Act 2010.

[68] Companion WEM Rules (1 February 2022)

[69] Clause 3.15A.5 of the new WEM Rules provides several matters that the ERA may have regard to in documenting its approach to assessing inefficient Real-Time Market outcomes for the purposes of potential triggering of the SESSM – these are largely focused on assessing the offers made for FCESS from the relevant, or similar, Facilities.

4.3.7 Enforcement consequences of the Market Power Test

Where offers have been assessed via the Market Power Test and passed either Stage 2 or 3, the ERA will not be provided with the ability to commence investigation or enforcement activities for breach of the Offer Construction Obligation in relation to those particular offers. Offers not assessed under the Market Power Test would be subject to standard ERA investigation and enforcement, including for breaches of the Offer Construction Obligation.

As noted in section 4.1, the Market Power Test will not assess the *conduct* of a Market Participant in making the relevant offers, i.e. it would not examine whether there is an indication of a breach of the Trading Conduct Obligation. As such, the ERA would not be prohibited from examining the conduct of a Market Participant in relation to the making of offers that 'passed' the Market Power Test, nor its compliance with other obligations under the WEM Rules (e.g. compliance with dispatch instructions).

EPWA considers that the proposed enforcement consequences of the Market Power Test provide a balance between certainty for Market Participants, and the provision of necessary flexibility to the ERA to monitor and investigate offers and conduct not examined through the Market Power Test.

While the Market Power Test should focus the ERA's monitoring and investigation activities, EPWA does not consider it possible for the proposed Gateway Test (or any objective test) to pick up all instances of adverse market power at all times. In addition, given the Gateway Test will be run periodically, there may be changes to the composition of Portfolios in the WEM, or available capacity, between tests that will require the ERA to monitor the offers of Market Participants outside of the Market Power Test.

4.4 Roles and Responsibilities

Table 9: Roles and Responsibilities under the Proposed MPM mechanism

Roles and Responsibilities in the Proposed MPM Mechanism
ERA
• Develop an Offer Construction Guideline that: ▪ sets out its interpretation of the Offer Construction Obligation, providing examples of compliant and non-compliant offers; and   ▪ set out its approach to Offer Assessment under Stage 2, (which would include guidance on how the ERA expects a participant would construct its offers) and the Market Impact Test under Stage 3, of the Market Power Test (ex-ante) • Develop a Trading Conduct Guideline that provides its interpretation of the Trading Conduct Obligation, and examples of compliant and non-compliant conduct to indicate to Market Participants what is safe and not safe trading conduct (ex-ante) • Develop and publish a new WEM Procedure, the Market Power Monitoring Protocol that: sets out the processes it would undertake to carry out the stages of the three-part Market Power Test, and further defines the additional information and internal control requirements that apply to Market Participants caught by the Gateway Test (ex-ante) • Consult with, and provide guidance to, Market Participants on values for specific Offer Components; and/or the methods or processes identified in the Offer Construction Guideline (ex-ante) • Collect information from Market Participants and/or AEMO necessary for it carry out the Market Power Test • Carry out the Standard Gateway Test (Stage 1 of the Market Power Test) on a twice-yearly basis; and the Constrained Gateway Test on a three-monthly basis, in accordance with the WEM Rules and the Market Power Monitoring Protocol to identify Portfolios that have market power in the general market and behind constraints (ex-ante/ex-post) • Carry out Offer Assessment (Stage 2 of the Market Power Test) on a periodic ex-post basis in accordance with the WEM Rules and Market Monitoring Protocol (ex-post)

Roles and Responsibilities in the Proposed MPM Mechanism
• Carry out the Market Impact Test (Stage 3 of the Market Power Test) on a periodic ex-post basis in accordance with the WEM Rules, and Market Monitoring Protocol (ex-post) • Set and review energy and FCESS price limits as a backstop mechanism (ex-ante) • Apply remedies to participants, who have breached their obligations in the WEM Rules (ex-post)
Market Participants
• Comply with the General Trading Obligations with reference to the Offer Construction Guideline and Trading Conduct Guideline issued by the ERA (ex-ante) • Ensure offers in Submissions are consistent with guidance provided in the Offer Construction Guideline (ex-ante) • If determined by the ERA to be caught by the Gateway Test, implement additional information records, and internal controls in accordance with the WEM Rules and Market Power Monitoring Procedure to support self-monitoring and prevention of potential market power exercise (ex-ante) • Monitor and report on their own trading practices (ex-ante) • Engage, on a voluntary basis, with the ERA to obtain guidance on the matters in the Offer Construction Guideline as to whether offers are likely to be consistent with expectations (ex-ante) • Assist and provide information to the ERA in any investigations (ex-post)
AEMO
• Provide information to the ERA necessary for it to carry out the Market Power Test and other monitoring functions
Coordinator of Energy
• Periodically reviewing the effectiveness and efficiency of the MPM mechanisms to ensure they remain fit-for-purpose and continue to balance the need for recovery of efficient costs while protecting consumers from inefficient market outcomes

Appendix A. Project Scope

Project Scope - Market Power Mitigation Strategy	
Stage	**Requirements and Analysis**
Stage 1	**Market power mitigation (MPM) unconfirmed design elements** Conduct an assessment of the "Unconfirmed Components" of market power identified by the Energy Transformation Taskforce (Taskforce) in its Information Paper. This will include consultation with stakeholders through TDOWG and one on one engagement. **(a) The Market Power Test** Assess the suitability of the proposed three-part Market Power Test as an objective measure of market power in the Wholesale Electricity Market (WEM). All submissions expressed concern over the design of the proposed pivotal supplier test (PST) and sought to input into the detailed design of the PST. Assessment to include consideration of what guidance needs to be provided by the Economic Regulation Authority (ERA).
	(b) The Offer Construction Guideline Assess the need and practicality of the proposed Offer Construction Guideline. There were concerns, in submissions, that the Offer Construction Guidelines would be more prescriptive and restrictive than the current Short Run Marginal Cost (SRMC) rule.
	(c) Pre-approval of offer parameters Assess the need and practicality of the proposed pre-approval of offer parameters. The concern in submissions was whether any discussions with the ERA would quickly reach an impasse including, for example, internal market power mitigation controls or fuel costs.
	(d) Guidance to the ERA Most submissions recommended that the Amending WEM Rules implementing the MPM arrangements in the new WEM should provide guidance to any decision by the ERA in developing and applying the new arrangements. Assess the level of guidance that should be provided to the ERA, which strikes the right balance between providing acceptable level of certainty to participants and avoiding unnecessarily fettering the discretion of the independent economic regulator.
	(e) Energy and ESS Price Limits Assess and make a recommendation as to how to provide for: • energy and ESS price limits which are high enough so that all participants can recover their efficient variable costs; and • a process for setting the energy and ESS price limits, which employs a mechanism that reduces the effort and frequency of adjustment.
	(f) Stakeholder Consultation Presentation of analysis and further proposals regarding the Unconfirmed Components of the MPM framework to industry stakeholders at one or more Transformation Design and Operation Working Group (TDOWG) meetings.

Project Scope - Market Power Mitigation Strategy	
Stage	**Requirements and Analysis**
Stage 2	**(g) MPM Framework Detailed design** The detailed design of the MPM strategy to be developed on the basis of all confirmed components, including those already identified in the Taskforce Information Paper. Assessment should include analysis of whether the entire detailed design of the MPM framework meets the Guiding Principles. Provide a final information paper on the conceptual design of these remaining components. Ensure stakeholder submissions are assessed and taken into account in the final design. Ensure any changes are assessed against the Guiding Principles.
Stage 3	**(h) Drafting of Amending WEM Rules** Draft Amending Rules to implement the MPM arrangements in the new WEM. The Rules will need to cover each component of the MPM framework, including those confirmed by the Taskforce. The Draft Rules will be published for consultation with stakeholders and will be presented to TDOWG.

Appendix B. Case Study Outcomes

Scenario A: pre-dispatch run ahead of start-up

Set-up

- 4 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- One of generator F3 or F4 is needed for FCESS only; both of these have min-gen costs, F3 with high min-gen cost/lower FCESS price, F4 with low min-gen cost/high FCESS price and lower overall cost
- Market clears on the discontinuity, such that clearing prices do not automatically compensate opportunity cost for the unit required to start
- Costs are calculated on a per-hour basis

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- Either facility F3 or F4 is needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- The choice of F3 or F4 would hinge on the combination of min-gen level and energy price

Requirements					
Energy demand (MW)	140	MW			
FCESS Lower demand (MW)	50	MW			
Price limits					
	Floor	**Cap**			
Energy (MW)	-$ 1,000	$ 600			
FCESS Lower demand (MW)	$ 0	$ 200			
Facility parameters and offers					
Facility		**F1**	**F2**	**F3**	**F4**
Min-gen (MW)		10	5	20	10
Energy P-Q pair 1	Quantity (MW)	60	100	50	40
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	$ 150
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*
Energy P-Q pair 2	Quantity (MW)	40			
	Price ($/MW)	$ 500			
	Cost of providing service	*$ 500*			
FCESS Lower P-Q pair	Quantity (MW)	20	20	30	40
	Price ($/MW)	$ 3	$ 1	$ 4	$ 5
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*
Dispatch and prices					
		F1	**F2**	**F3**	**F4**
Dispatch	Energy (MW)	60	60		20
	FCESS Lower (MW)	20	20		10
Total system cost per hr	- $116,810.00				
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*			
FCESS Lower price ($/MW)	$ 1,154.00	*Next MW would come from F4, with 1MW energy shift from F2 to F4*			

Scenario B: dispatch run for start-up and ramp

Set-up

- 4 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- Pre-dispatch forecasts have indicated that F4 will run, so the participant offers it at the price floor to start and ramp to 20 MW
- Facility F4 is needed to address a FCESS shortfall, but is unable to alleviate the shortfall in this interval
- Costs to be calculated on the assumption that one dispatch interval is required to ramp from 0 to 20 MW (quantities divided by 12)
- Calculated costs/revenue for facility F4 assume linear ramp over the two dispatch intervals, with no FCESS enablement. F1 and F2 are stable.

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- Facility F4 is needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- It is assumed that offering at the price floor is only needed during the initial ramping period
- In the event of a shortfall in a FCESS market, the clearing price is to be set at the energy price cap minus the energy price floor (WEM Rule 7.11A.1(i))
- FCESS Uplift Payment calculated according to formula in WEM Rules (Chapter 11, "Estimated Enablement Losses"), with LF=1
- FCESS Uplift Payment filtered to only apply where a unit is enabled for a FCESS, and its energy dispatch level is <= min-gen + FCESS Lower enablement

Requirements			
Energy demand (MW)	140	MW	
FCESS Lower demand (MW)	50	MW	
Price limits			
	Floor	**Cap**	
Energy (MW)	-$ 1,000	$ 600	
FCESS Lower demand (MW)	$ 0	$ 200	

Facility parameters and offers					
Facility		**F1**	**F2**	**F3**	**F4**
Min-gen (MW)		10	5	20	10
Energy P-Q pair 1	Quantity (MW)	60	100	50	20
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	-$ 1,000
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*
Energy P-Q pair 2	Quantity (MW)	40			30
	Price ($/MW)	$ 500			$ 150
	Cost of providing service	*$ 500*			*$ 150*
FCESS Lower P-Q pair	Quantity (MW)	20	20	30	40
	Price ($/MW)	$ 3	$ 1	$ 4	$ 5
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*

Dispatch and prices					
		F1	**F2**	**F3**	**F4**
Dispatch	Energy (MW)	60	60		20
	FCESS Lower (MW)	20	20		
Total system cost per hr	-$ 139,860.00				
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*			
FCESS Lower price ($/MW)	$ 1,600.00	*Price set at energy price cap - energy price floor (WEM Rules clause 7.11A.1(i))*			

Facility costs/revenue (calculated for 5-minute ramp period)						
Facility		**F1**	**F2**	**F3**	**F4**	**Total market cost**
Facility costs		-$ 4,995.00	-$ 4,933.33	$ -	$ 125.00	
Facility revenue (Energy)		-$ 4,995.00	-$ 4,995.00	$ -	-$ 832.50	-$ 10,822.50
Facility revenue (FCESS)		$ 2,666.67	$ 2,666.67	$ -	$ -	$ 5,333.33
FCESS Uplift Payment		$ -	$ -	$ -	$ -	$ -
Profit/loss		***$ 2,666.67***	***$ 2,665.00***	***$ -***	***-$ 957.50***	
						-$ 5,489.17

Scenario C: dispatch for energy and FCESS over 1 hour, FCESS cap and FCESS Uplift Payment

Set-up

- 4 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- As F4 is In-Service, it can be dispatched for energy and enabled for FCESS; F3 is not In-Service so cannot be enabled for FCESS
- Pre-dispatch forecasts have indicated that F4 will run, so the participant has brought the facility into service and ramped to 20 MW
- Once F4 has ramped to 20 MW, the participant returns its energy price offers to the cost-reflective level
- Market clears on the discontinuity, such that clearing prices do not automatically compensate opportunity cost for the unit required to start
- Costs are calculated on a per-hour basis, with no ramping assumed

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- Facility F4 is needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- FCESS Uplift Payment calculated according to formula in WEM Rules (Chapter 11, "Estimated Enablement Losses"), with LF=1
- FCESS Uplift Payment filtered to only apply where a unit is enabled for a FCESS, and its energy dispatch level is <= min-gen + FCESS Lower enablement

Requirements			
Energy demand (MW)	140	MW	
FCESS Lower demand (MW)	50	MW	
Price limits			
	Floor	**Cap**	
Energy (MW)	-$ 1,000	$ 600	
FCESS Lower demand (MW)	$ 0	$ 200	

Facility parameters and offers					
Facility		**F1**	**F2**	**F3**	**F4**
Status		In-Service	In-Service	Available	In-Service
Min-gen (MW)		10	5	20	10
Energy P-Q pair 1	Quantity (MW)	60	100	50	40
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	$ 150
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*
Energy P-Q pair 2	Quantity (MW)	40			
	Price ($/MW)	$ 500			
	Cost of providing service	*$ 500*			
FCESS Lower P-Q pair	Quantity (MW)	20	20	30	40
	Price ($/MW)	$ 3	$ 1	$ 4	$ 5
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*

Dispatch and prices					
		F1	**F2**	**F3**	**F4**
Dispatch	Energy (MW)	60	60		20
	FCESS Lower (MW)	20	20		10
Total system cost per hr	-$ 116,810.00				
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*			
FCESS Lower price ($/MW)	$ 1,154.00	*Next MW would come from F4, with 1MW energy shift from F2 to F4*			

Facility costs/revenue						
Facility		**F1**	**F2**	**F3**	**F4**	**Total market cost**
Facility costs		-$ 59,940.00	-$ 59,920.00	$ -	$ 3,050.00	
Facility revenue (Energy)		-$ 59,940.00	-$ 59,940.00	$ -	-$ 19,980.00	-$ 139,860.00
Facility revenue (FCESS)		$ 23,080.00	$ 23,080.00	$ -	$ 11,540.00	$ 57,700.00
FCESS Uplift Payment		$ -	$ -	$ -	$ 11,490.00	$ 11,490.00
Profit/loss		***$ 23,080.00***	***$ 23,060.00***	***$ -***	***$ -***	
						-$ 70,670.00

Scenario D: dispatch for energy and FCESS over 1 hour, no FCESS price cap or FCESS Uplift Payment

Set-up

- 4 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- As F4 is In-Service, it can be dispatched for energy and enabled for FCESS; F3 is not In-Service so cannot be enabled for FCESS
- Pre-dispatch forecasts have indicated that F4 will run, so the participant has brought the facility into service and ramped to 20 MW
- F3 and F4 are priced so as to recover forecast Enablement Losses
- Market clears on the discontinuity, such that clearing prices do not automatically compensate opportunity cost for the unit required to start
- Costs are calculated on a per-hour basis, with no ramping assumed

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- Facility F4 is needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- Assumed that participant can forecast enablement losses perfectly and price FCESS offers to recoup this loss
- No FCESS Uplift Payment is calculated

Requirements			
Energy demand (MW)	140	MW	
FCESS Lower demand (MW)	50	MW	
Price limits			
	Floor	**Cap**	
Energy (MW)	-$ 1,000	$ 600	
FCESS Lower demand (MW)	$ 0	$ 200	

Facility parameters and offers					
Facility		**F1**	**F2**	**F3**	**F4**
Status		In-Service	In-Service	Available	In-Service
Min-gen (MW)		10	5	20	10
Energy P-Q pair 1	Quantity (MW)	60	100	50	40
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	$ 150
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*
Energy P-Q pair 2	Quantity (MW)	40			
	Price ($/MW)	$ 500			
	Cost of providing service	*$ 500*			
FCESS Lower P-Q pair	Quantity (MW)	20	20	30	40
	Price ($/MW)	$ 3	$ 1	$ 2,202	$ 1,154
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*

Dispatch and prices					
		F1	**F2**	**F3**	**F4**
Dispatch	Energy (MW)	60	60		20
	FCESS Lower (MW)	20	20		10
Total system cost per hr	-$ 105,320.00				
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*			
FCESS Lower price ($/MW)	$ 2,303.00	*Next MW would come from F4, with 1MW energy shift from F2 to F4*			

Facility costs/revenue						
Facility		**F1**	**F2**	**F3**	**F4**	**Total market cost**
Facility costs		-$ 59,940.00	-$ 59,920.00	$ -	$ 3,050.00	
Facility revenue (Energy)		-$ 59,940.00	-$ 59,940.00	$ -	-$ 19,980.00	-$ 139,860.00
Facility revenue (FCESS)		$ 46,060.00	$ 46,060.00	$ -	$ 23,030.00	$ 115,150.00
FCESS Uplift Payment		$ -	$ -	$ -	$ -	$ -
Profit/loss		***$ 46,060.00***	***$ 46,040.00***	***$ -***	***$ -***	
						-$ 24,710.00

Scenario E: dispatch for energy and FCESS over 1 hour, both F3 and F4 needed

Set-up

- 4 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- As both F3 and F4 are In-Service, they can be dispatched for energy and enabled for FCESS
- Pre-dispatch forecasts have indicated that F3 and F4 will run, so the participant/s has/have brought the facilities into service and ramped to 30 MW and 15 MW respectively
- Market clears on the discontinuity, such that clearing prices do not automatically compensate opportunity cost for the unit required to start
- Costs are calculated on a per-hour basis, with no ramping assumed

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- Facilities F3 and F4 are both needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- The preferencing of F3 or F4 would hinge on their relative energy/ESS prices (min-gen costs not relevant once both units required)
- FCESS Uplift Payment calculated according to formula in WEM Rules (Chapter 11, "Estimated Enablement Losses"), with LF=1
- FCESS Uplift Payment filtered to only apply where a unit is enabled for a FCESS, and its energy dispatch level is <= min-gen + FCESS Lower enablement

Requirements			
Energy demand (MW)	140	MW	
FCESS Lower demand (MW)	55	MW	
Price limits			
	Floor	**Cap**	
Energy (MW)	-$ 1,000	$ 600	
FCESS Lower demand (MW)	$ 0	$ 200	

Facility parameters and offers					
Facility		**F1**	**F2**	**F3**	**F4**
Status		In-Service	In-Service	In-Service	In-Service
Min-gen (MW)		10	5	20	10
Energy P-Q pair 1	Quantity (MW)	60	100	50	40
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	$ 150
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*
Energy P-Q pair 2	Quantity (MW)	40			
	Price ($/MW)	$ 500			
	Cost of providing service	*$ 500*			
FCESS Lower P-Q pair	Quantity (MW)	20	20	10	10
	Price ($/MW)	$ 3	$ 1	$ 4	$ 5
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*

Dispatch and prices					
		F1	**F2**	**F3**	**F4**
Dispatch	Energy (MW)	60	35	30	15
	FCESS Lower (MW)	20	20	10	5
Total system cost per hr	-$ 89,570.00				
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*			
FCESS Lower price ($/MW)	$ 1,154.00	*Next MW would come from F4, with 1MW energy shift from F2 to F4*			

Facility costs/revenue						
Facility		**F1**	**F2**	**F3**	**F4**	**Total market cost**
Facility costs		-$ 59,940.00	-$ 59,920.00	$ 3,040.00	$ 2,275.00	
Facility revenue (Energy)		-$ 59,940.00	-$ 59,940.00	-$ 29,970.00	-$ 14,985.00	-$ 139,860.00
Facility revenue (FCESS)		$ 23,080.00	$ 23,080.00	$ 11,540.00	$ 5,770.00	$ 63,470.00
FCESS Uplift Payment		$ -	$ -	$ 21,980.00	$ 11,490.00	$ 33,470.00
Profit/loss		***$ 23,080.00***	***$ 23,060.00***	***$ 510.00***	***$ -***	
						-$ 42,920.00

Scenario F: dispatch for energy and FCESS over 1 hour, with 5th generator with zero min-gen

Set-up

- 5 generator system
- Facilities F1 and F2 are generators running for energy and some FCESS
- As F4 and F5 are In-Service, they can be dispatched for energy and enabled for FCESS; F3 is not In-Service so cannot be enabled for ESS
- Pre-dispatch forecasts had indicated that F4 will run, so the participant has brought the facility into service and ramped to 20 MW
- F5 has then returned to service
- Market clears on the discontinuity, such that clearing prices do not automatically compensate opportunity cost for the unit required to start
- Costs are calculated on a per-hour basis

Notes/hypotheses

- Facilities F1 and F2 will run for energy (much cheaper than facilities F3 and F4)
- One of generators F3, F4 and F5 is needed to meet the FCESS Lower requirement, but would not otherwise run for energy
- The choice of F3, F4 or F5 would hinge on the combination of min-gen level and energy price
- FCESS Uplift Payment calculated according to formula in WEM Rules (Chapter 11, "Estimated Enablement Losses"), with LF=1
- FCESS Uplift Payment filtered to only apply where a unit is enabled for a FCESS, and its energy dispatch level is <= min-gen + FCESS Lower enablement

Requirements			
Energy demand (MW)	140	MW	
FCESS Lower demand (MW)	50	MW	
Price limits			
	Floor	**Cap**	
Energy (MW)	-$ 1,000	$ 600	
FCESS Lower demand (MW)	$ 0	$ 200	

Facility parameters and offers						
Facility		**F1**	**F2**	**F3**	**F4**	**F5**
Status		In-Service	In-Service	Available	In-Service	In-Service
Min-gen (MW)		10	5	20	10	0
Energy P-Q pair 1	Quantity (MW)	60	100	50	40	40
	Price ($/MW)	-$ 1,000	-$ 999	$ 100	$ 150	$ 600
	Cost of providing service	*-$ 1,000*	*-$ 999*	*$ 100*	*$ 150*	*$ 600*
Energy P-Q pair 2	Quantity (MW)	40				
	Price ($/MW)	$ 500				
FCESS Lower P-Q pair	Quantity (MW)	20	20	30	40	40
	Price ($/MW)	$ 3	$ 1	$ 4	$ 5	$ 6
	Cost of providing service	*$ 3*	*$ 1*	*$ 4*	*$ 5*	*$ 6*

Dispatch and prices						
		F1	**F2**	**F3**	**F4**	**F5**
Dispatch	Energy (MW)	60	70			10
	FCESS Lower (MW)	20	20			10
Total system cost per hr	-$123,790.00					
Energy price ($/MW)	-$ 999.00	*Next MW would come from F2*				
FCESS Lower price ($/MW)	$ 1,605.00	*Next MW would come from F5, with 1MW energy shift from F2 to F5*				
Facility costs/revenue						

Facility		F1	F2	F3	F4	F5	Total market cost
Facility costs		-$ 59,940.00	-$ 69,910.00	$ -	$ -	$ 6,060.00	
Facility revenue (Energy)		-$ 59,940.00	-$ 69,930.00	$ -	$ -	-$ 9,990.00	**-$ 139,860.00**
Facility revenue (FCESS)		$ 32,100.00	$ 32,100.00	$ -	$ -	$ 16,050.00	**$ 80,250.00**
FCESS Uplift Payment		$ -	$ -	$ -	$ -	$ -	**$ -**
Profit/loss		***$ 32,100.00***	***$ 32,080.00***	***$ -***	***$ -***	***$ -***	
							-$ 59,610.00

Appendix C. Cost Recovery Implications of the Proposed MPM Framework

Cost	Cost recovery stream	Potential risk to recovery
Fixed Costs		
- **Capital costs** - **Depreciation** - **Fixed operating and maintenance costs** - **Other fixed costs**	Primary Cost Recovery Stream Reserve Capacity Mechanism (RCM)/Reserve Capacity Price (RCP) Secondary cost recovery stream Energy market and/or FCESS market prices (to the extent that clearing prices exceed a facility's production costs) and/or Large Scale Generation Certificates (LGCs) (if applicable)	***Recovery of fixed costs through the Reserve Capacity Market*** • The Benchmark Reserve Capacity Price (BRCP) is based on the cost of new entry for an efficient new entrant capacity provider (currently based on a diesel-fuelled OCGT) with relatively low fixed costs relative to other technologies. Given this, generators with higher fixed costs are not expected to recover all of these costs in the Reserve Capacity Mechanism. • RCPs are pegged to the BRCP and decline if there is surplus capacity in the market, further reducing the ability for generators to recoup fixed costs through the RCM. This is the same dynamic that would occur in an energy only market, where the spot price would be expected to tend to SRMC when there is an oversupply of capacity. • The **proposed MPM Framework** does not modify RCM arrangements, is intended to promote efficient market outcomes (see Guiding Principle 2), and should not negatively impact supply and demand conditions in the WEM. ***Recovery of fixed costs through energy or FCESS markets*** • In workably competitive markets, in the absence of market power, Market Participants would be expected to offer their output at a price that closely reflects SRMC.[70] Despite this, energy market and FCESS prices may clear above the production costs of most generators, allowing these generators to recover of a portion of their fixed costs through the energy markets.

[70] Biggar, D. The Theory and Practice of the Exercise of Market Power in the Australian NEM, 26 April 2011, p 4

Cost	Cost recovery stream	Potential risk to recovery
		• If the operating costs for a Facility are typically close to the relevant energy or FCESS clearing price, there is limited ability for that Facility to recoup a portion of its fixed costs through the energy or FCESS market so the Facility must recover the majority of its fixed costs in the RCM. • The **proposed MPM framework** is not intended to reduce the ability of Market Participants to capture the marginal price of energy or FCESS as compared to existing arrangements: ○ The proposed **General Trading Obligations and Market Power Test** are intended to meet the Guiding Principles, and allow for the recovery of efficient costs by producers, and so should not adversely impact on the investment decisions of existing or prospective Market Participants. ○ **Energy and FCESS price caps** should continue to reflect the highest cost Facility or Facilities in the SWIS, and so Market Participants should be no worse off under proposed arrangements in respect of their ability to capture marginal clearing prices that exceed production costs. ▪ The **proposed energy price cap** would be based on the highest cost Facility or Facilities in the SWIS, focused on the operational circumstances that are likely to result in the highest operating costs. A margin and indexation are also intended to be applied so that the price cap is flexible to changing circumstances. ▪ The **proposed FCESS price cap** would be based on estimates of reasonable operating costs for the most expensive FCESS provider(s) in the SWIS. ***Recovery of fixed costs through Large-scale Renewable Energy Certificates (LGCs)*** • A renewable generator may qualify for LGCs as an accredited power station under the Commonwealth Large-scale Renewable Energy Target. It may obtain revenue from trading LGCs (liable entities must surrender a certain number of LGCs based on the volume of electricity they acquire each year), allowing it to recover of a portion of its fixed costs. • The **proposed MPM Framework** does not intend to reduce the ability of Market Participants to obtain revenue through the creation and trade of LGCs.

Cost	Cost recovery stream	Potential risk to recovery
Variable costs		
- **Start-up costs** - **Min-gen costs** - **Shutdown costs** - **Fuel costs** - **Opportunity costs of fuel (or battery changing source)** - **Other variable costs**	Primary Cost Recovery Stream Energy market Secondary cost recovery stream FCESS market and/or Uplift Payment[71]	***Recovery of variable costs in the energy market*** • The proposed MPM Framework has been developed to be consistent with Guiding Principles that are aimed at ensuring the recovery of efficient costs by energy producers.[72] • The proposed **General Trading Obligations and Market Power Test** should provide greater clarity to Market Participants of the costs that should be included in offers, both by removing terminology under existing obligations that might constrain incorporation of these costs, and by providing greater direction to the ERA. ○ Proposed amendments to existing arrangements should provide greater confidence to Market Participants of their ability to recover start-up and shutdown costs, and other variable costs, through energy offer prices. ○ Proposed arrangements would remove existing provisions that prevent Market Participants offering prices above reasonable expectations of SRMC[73] and provide instead that a Market Participant must offer prices in Submissions that reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer. ▪ This should improve the certainty associated with the status of start-up and shutdown costs compared to the previous SRMC requirements. ○ Offer Assessment under Stage 2 of the Market Power Test would be consistent with the General Trading Obligations, in that the ERA would be directed to assess whether the prices offered by a Market Participant in a Submission(s) for a Facility

[71] This is an additional payment that would be made to FCESS providers where enablement costs are not fully accounted for in FCESS clearing prices.

[72] Guiding Principle 1

[73] Where such behaviour relates to market power, see WEM Rules clauses cl 6.6.3 (STEM), 7A.2.17 (Balancing Market), and 7B.2.16 (LFAS Market)

Cost	Cost recovery stream	Potential risk to recovery
		appear to not reflect the costs that a Market Participant without market power would include in forming its profit-maximising offer ▪ The Proposed Design would prescribe in the WEM Rules that the ERA must publish an Offer Construction Guideline setting out start-up and shutdown costs (as well as reasonable amortisation of these costs across Trading and Dispatch Intervals) and guidance on treatment of fuel costs.[74] ○ EPWA considers that the proposed framework settings are likely to improve the ability for Market Participants to recover variable costs. • The **energy price limits** framework will provide that price caps are based on the highest cost Facility or Facilities in the SWIS, focused on the operational circumstances that are likely to result in the highest operating costs. This is expected to allow generators with the highest production costs to recover their variable operating costs for the provision of energy while also allowing Facilities with lower variable costs to recover a portion of their fixed costs. ***Recovery of relevant costs in the FCESS market*** • It is not proposed that the **Market Power Test** be applied to FCESS offers, but that MPM in the FCESS Markets relies on the SESSM and compliance with General Trading Obligations.[75] ○ The Proposed Design would require the ERA to develop and publish guidance on how it would interpret the Offer Construction Obligation. EPWA expects this would require the ERA to consider the application of these obligations to FCESS offers. • It is proposed that the **FCESS price limits** framework develop price caps based on estimates of reasonable operating costs for the most expensive FCESS provider(s) in the SWIS. This is expected to allow generators with the highest FCESS operating costs to recover these costs

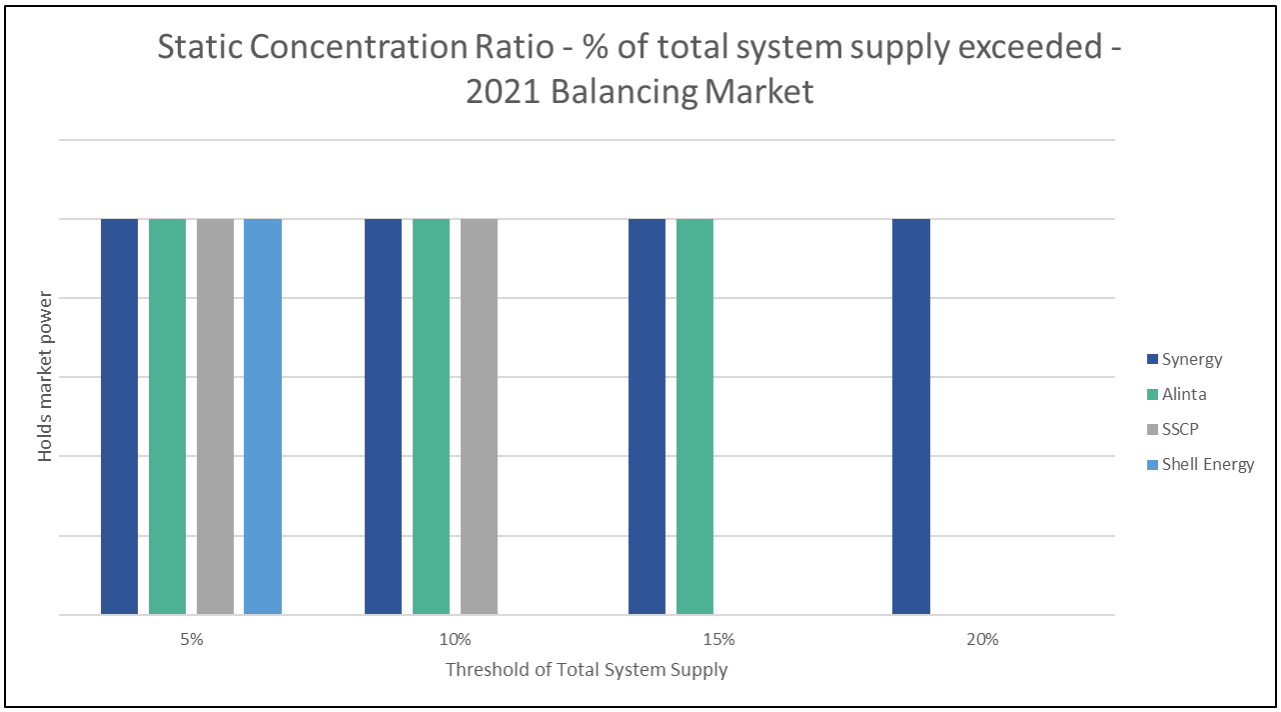
[74] See Section 4.2

[75] See Section 4.3.3

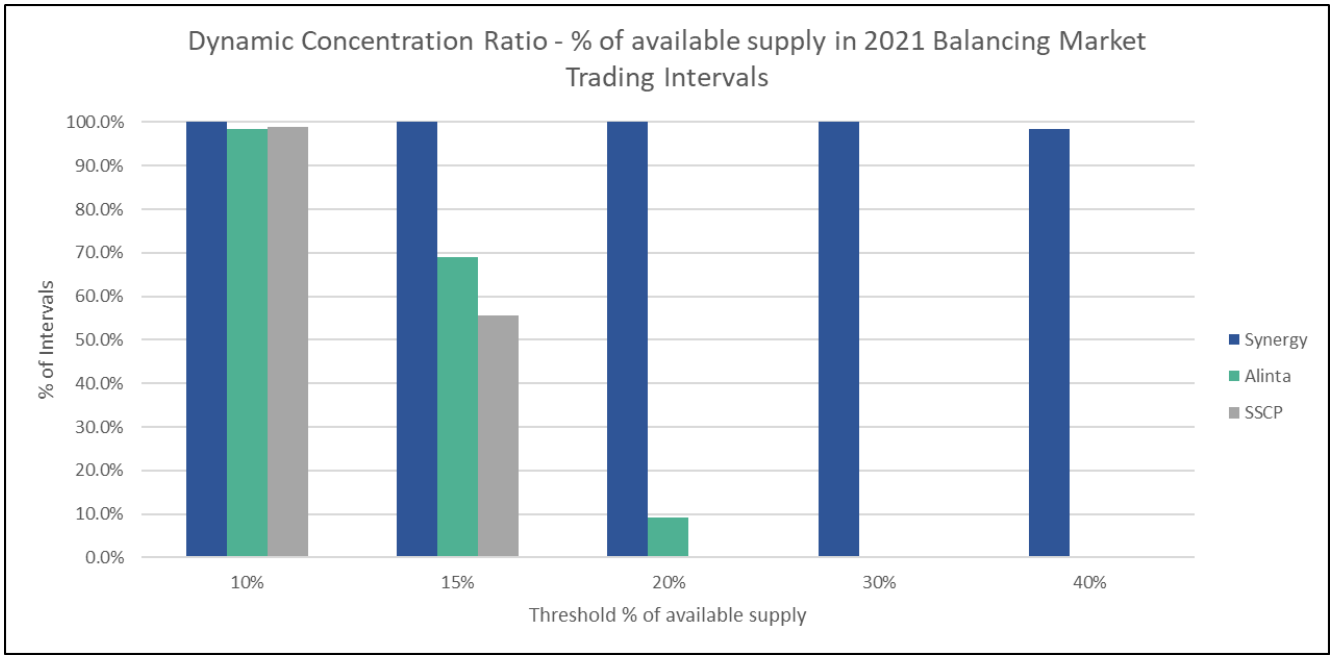
Cost	Cost recovery stream	Potential risk to recovery
		while also allowing Facilities with lower FCESS operating costs to recover a portion of their fixed costs. • The co-optimisation and pricing algorithms of the new Real Time Market readily allow for calculation and addition of opportunity costs and Enablement Losses to the market clearing prices. This will be accompanied by a FCESS Uplift Payment to compensate Enablement Losses where these are not priced into market clearing prices. This provides greater certainty relative to the current market that these costs will be adequately compensated. • The proposed arrangements for FCESS prices would not restrict the recovery of all variable costs in FCESS markets under the Proposed Design as they will: o allow the FCESS clearing price to exceed the FCESS price cap where necessary to compensate opportunity costs (i.e. revenues that would have otherwise been received in the energy market); o include a separate FCESS Uplift Payment to compensate Enablement Losses where start-up costs are not automatically priced into the FCESS market and are not covered in the energy price.
FCESS operating costs	Primary Cost Recovery Stream FCESS market Secondary cost recovery stream Uplift Payment	• The proposed arrangements for **FCESS price caps** will not restrict the recovery of operating costs, even where start-up costs are not automatically priced into the FCESS market and not covered in the energy price. The proposed framework will include a separate FCESS Uplift Payment to compensate Enablement Losses. • See also the discussion of FCESS costs above.

Appendix D. Gateway Test Data Analysis

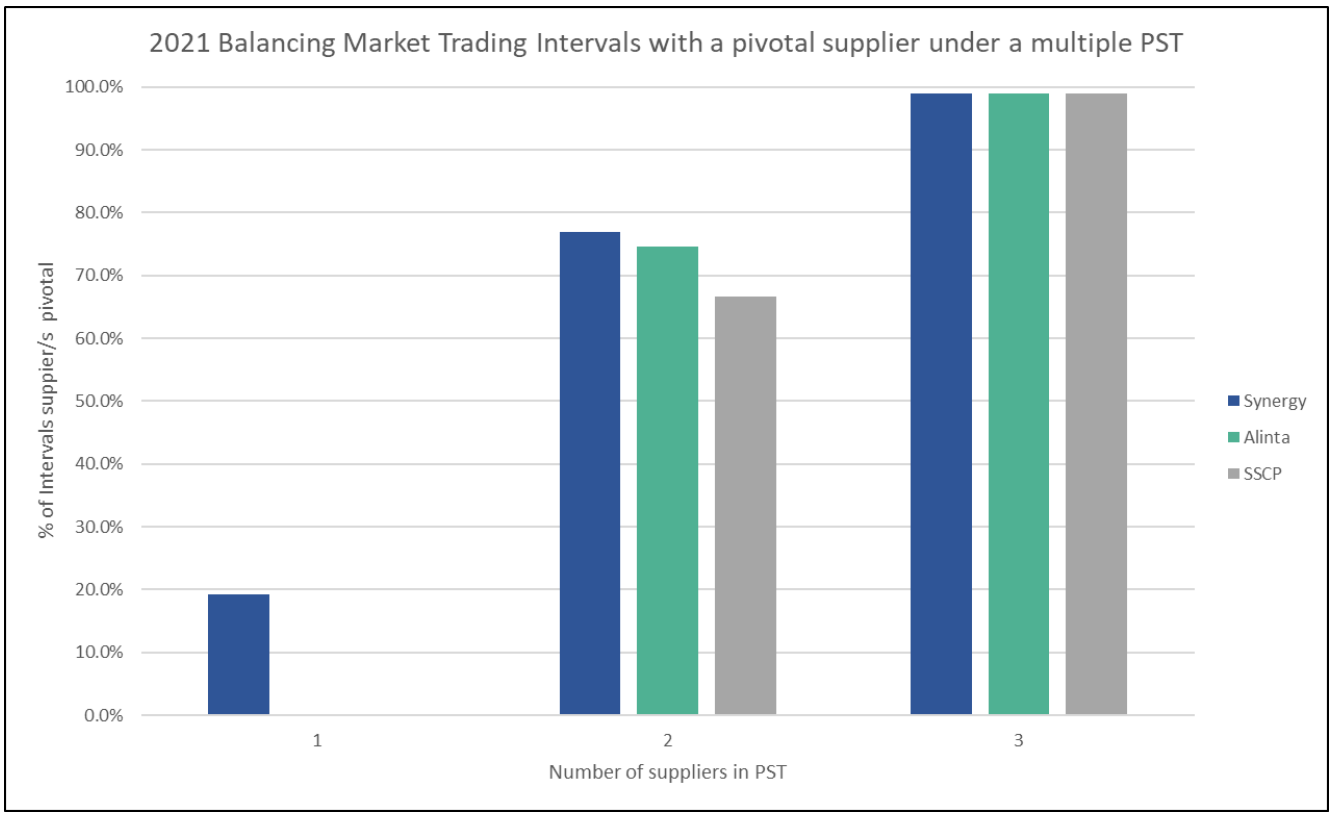
All data presented in the charts below is based on CY2021 Balancing Market data, downloaded from AEMO's Market Data page.



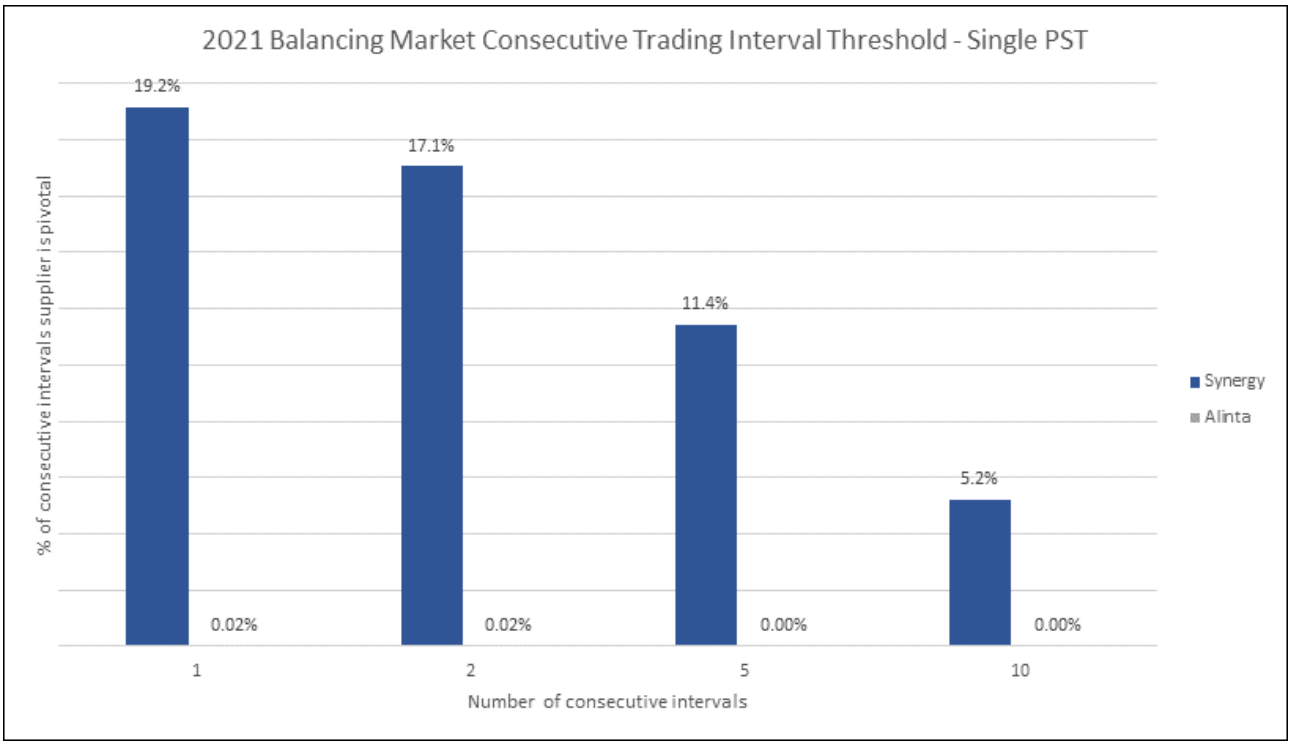
- Concentration ratios (CRs) assess the competitiveness of a market and the ability of a Portfolio to influence market outcomes based purely on share of overall capacity or supply. They can be either static or dynamic.
- The static measure presented in the chart above assesses a portfolio (being one or several Facilities owned by one or more related entities) as a % of the total capacity (or supply) in the market, based on the total market capacity at the point when the test is run.
- The analysis presented here shows that four Portfolios are captured at a 5% CR, three at 10%, two at 15% and only one at 20%.
- Under this scenario, a snapshot is taken at set intervals (potentially 6 monthly) and based on sent out capacity data published by AEMO to assess a Portfolio's market share.



- The dynamic measure of a CR assesses market share at more regular intervals (potentially day-ahead or real-time) to identify the Portfolio as a percentage of the total *available* supply in the market at that point in time.
- This chart indicates whether or not a supplier holds market power by analysing its total available portfolio against the total available system supply in each Trading Interval (i.e. its dynamic market share).
- Where an interval-by-interval threshold of 10% of total available supply is applied, the three largest suppliers are captured in at least 98% of Trading Intervals.
- The number of Trading Intervals in which the second and third largest suppliers are captured drops dramatically where a 20% threshold of available supply is applied.
- Synergy would still be captured by the test at close to 100 percent of Trading Intervals where a 40% available supply threshold is applied.



- A PST examines whether, with the removal of the capacity of one, two or three Portfolios from the market (i.e. a one, two or three PST), supply would fail to meet demand for a pre-determined number of consecutive Trading Intervals.
- This chart indicates whether, and how often, the top three suppliers in the WEM in 2021 were pivotal under one, two and three PSTs (using a single Trading Interval threshold).
- Under a Single-PST method, applied to 2021 Balancing Market data at a single Trading Interval threshold, Synergy is caught by the test in close to 20% of Trading Intevals (no other suppliers are caught in this circumstance).
- Where a multiple PST (i.e. a two-PST or three-PST) is applied to 2021 Balancing Market data, the number of individual intervals with pivotal suppliers grows substantially.
    - Under a 2-PST, Synergy would have been pivotal in 85.9% of individual intervals, Alinta in 84.5% and SSCP in 76.0%.
    - Under a 3-PST, these same three suppliers would have been pivotal in 99.65% of individual intervals.



- This chart shows the impact of introducing a consecutive interval threshold to the 1-PST (i.e. the number of Trading Intervals in which the Portfolio must be pivotal before they will be deemed to have been caught by the Gateway Test).
- Analysis shows that, based on 2021 Balancing Market conditions, Synergy would have been pivotal in 19.2% where a single Trading Interval threshold is applied.
- This reduces to 5.2% where a threshold of 10 consecutive intervals is applied.
- Alinta is captured 0.02% of the time where either a 1 or 2 consecutive inerval threshold is applied.
- Other Portfolios are rarely pivotal in this period and based on current supply Portfolios in the WEM.

Energy Policy WA
Level 1, 66 St Georges Terrace, Perth WA 6000
Locked Bag 100, East Perth WA 6892
Telephone: 08 6551 4600
www.energy.wa.gov.au

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