



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

Market Power Mitigation Strategy

Stakeholder Feedback Session – Proposed Design

18 August 2022

Working together for a
brighter energy future.

Agenda

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Context and Overview

- On 1 August 2022, EPWA released the Market Power Mitigation Strategy Consultation Paper
- Contained analysis on 'unconfirmed elements' and a Proposed Design
- This session is an opportunity for stakeholders to provide feedback and seek clarification
- Submissions are due 29 August 2022

Next Steps

- Feedback will be considered in developing the detailed design
- Information Paper on the detailed design will be released alongside the draft WEM Rules
- Amending Rules finalised for approval by the Minister for Energy – by end of 2022

Market Power Mitigation

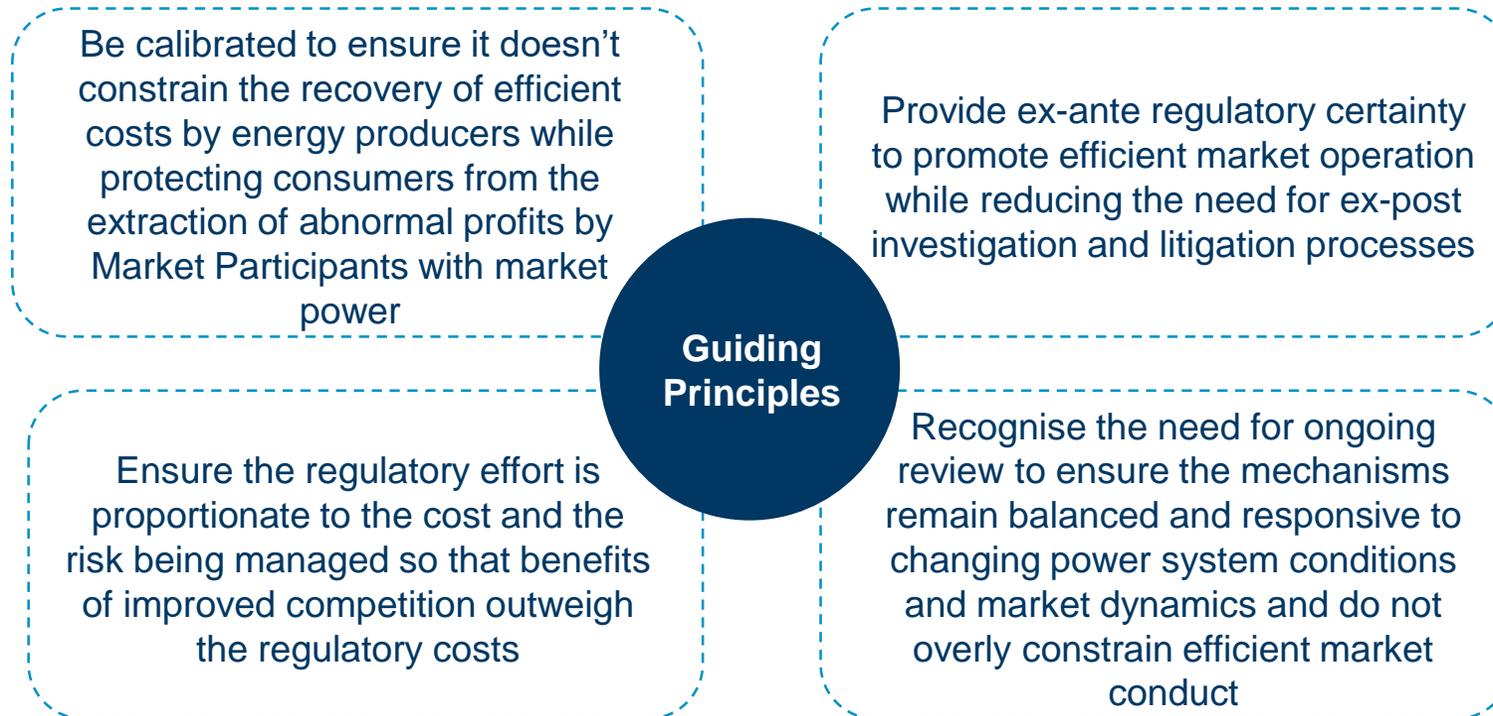
Purpose and importance of the Market Power Mitigation Strategy

- Measures for market power mitigation are applied in wholesale electricity markets globally
- Similar objectives – to avoid or minimise the economic impact of anti-competitive conduct from participants capable of exercising market power
- Even where structures in the market limit opportunity for the exercise of market power – it remains a risk in electricity markets
- The design of a market plays an important role and mitigation measures will vary depending on market design and characteristics
- Implementation of effective market power mitigation measures will be crucial to the effective operation of the new Wholesale Electricity Market

Guiding Principles

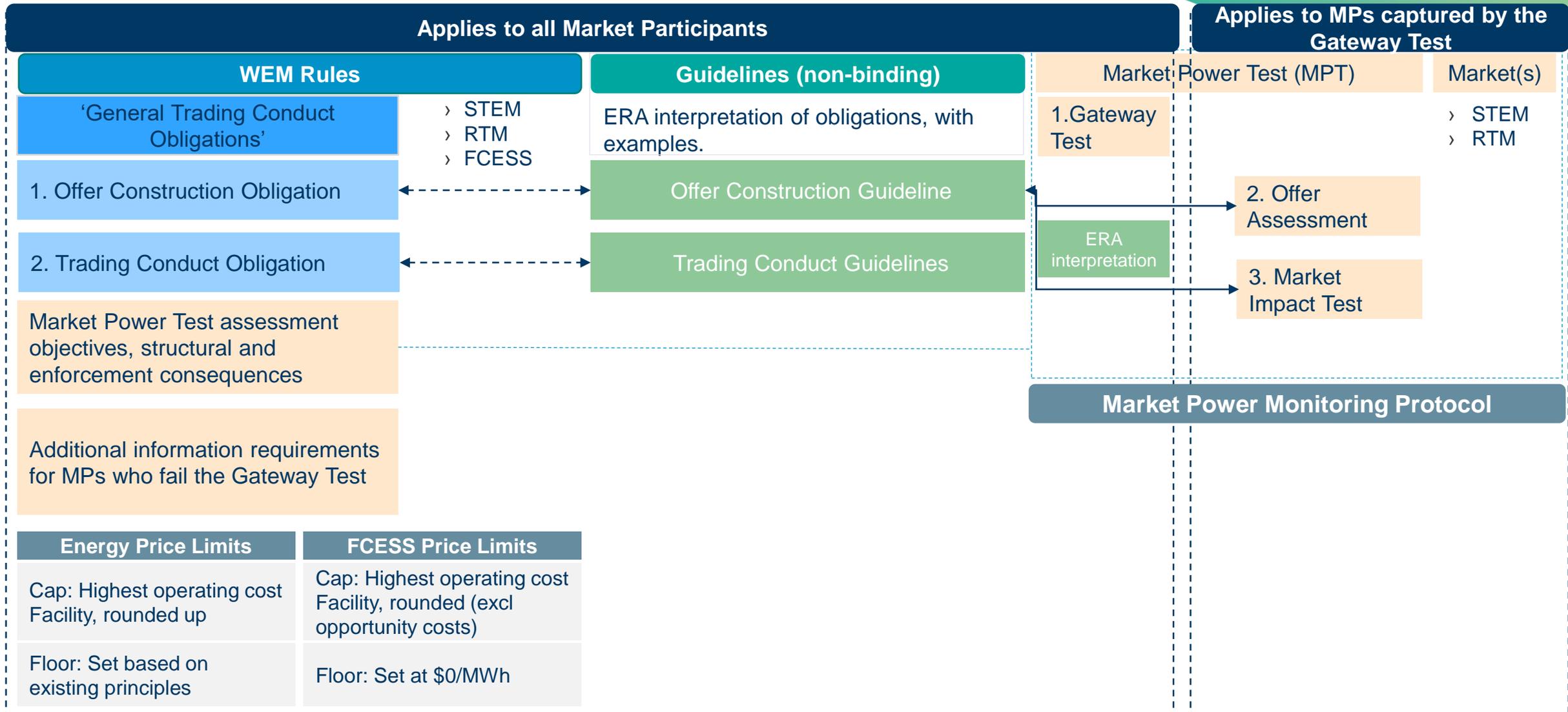
The Proposed Design for the Market Power Mitigation Framework has been assessed against four guiding principles

The Energy Transformation Taskforce determined that the Market Power Mitigation Framework should:



Market Power Mitigation Strategy Proposed Design

Overview of Proposed Design



General Trading Obligations

Contained in the WEM Rules and will apply to the STEM, RTM and FCESS market.

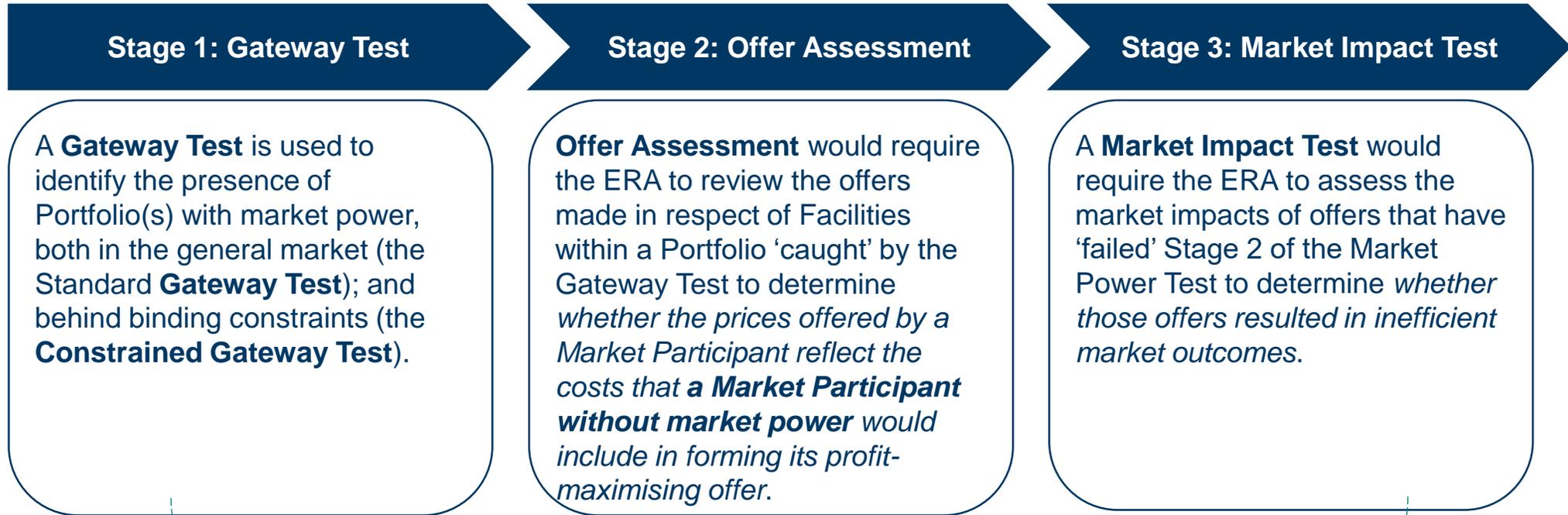
Applicable to all Market Participants regardless of whether a Market Participant is 'caught' under the Gateway Test (Stage 1 of the Market Power Test)

Offer Construction Obligation	This would replace the existing SRMC obligation 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.
Trading Conduct Obligation	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: <ul style="list-style-type: none">• 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 providing examples of compliant and non-compliant offers and conduct.

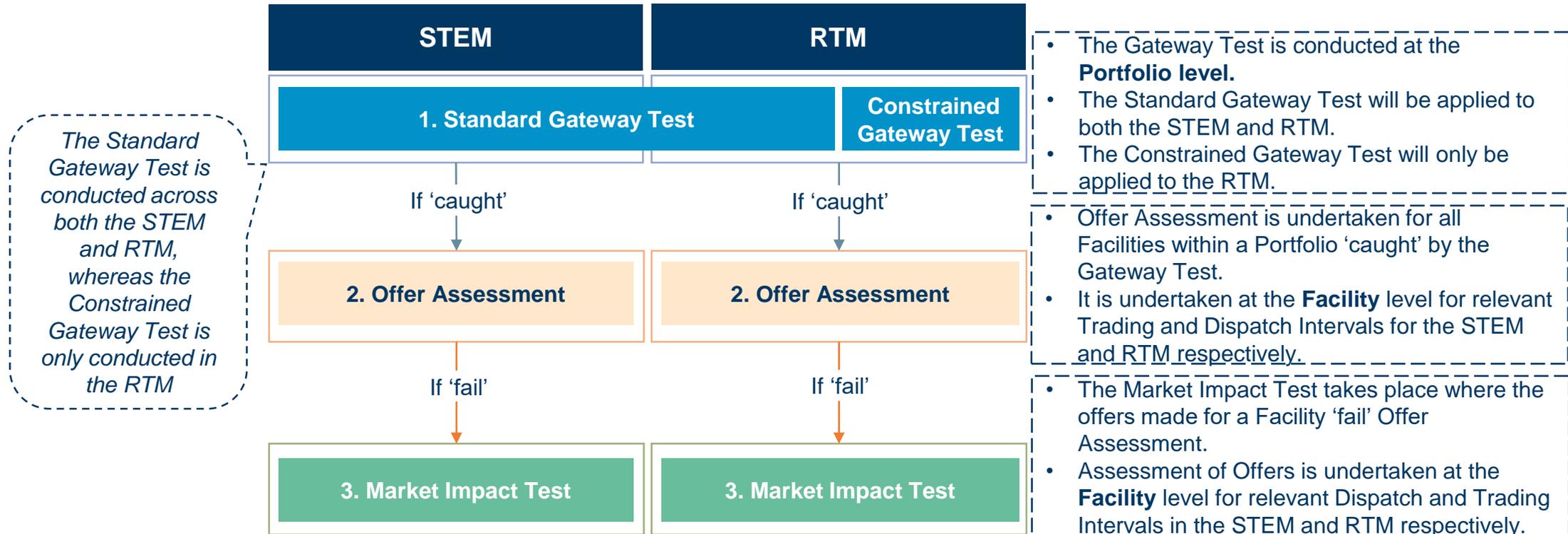
The Market Power Test

The ERA would be required in the WEM Rules to undertake a three-part Market Power Test



- *The ERA must set out procedural details of the Gateway Test in its Market Power Monitoring Protocol;*
- *The ERA must outline 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).*

Market Power Test only run across the STEM and RTM



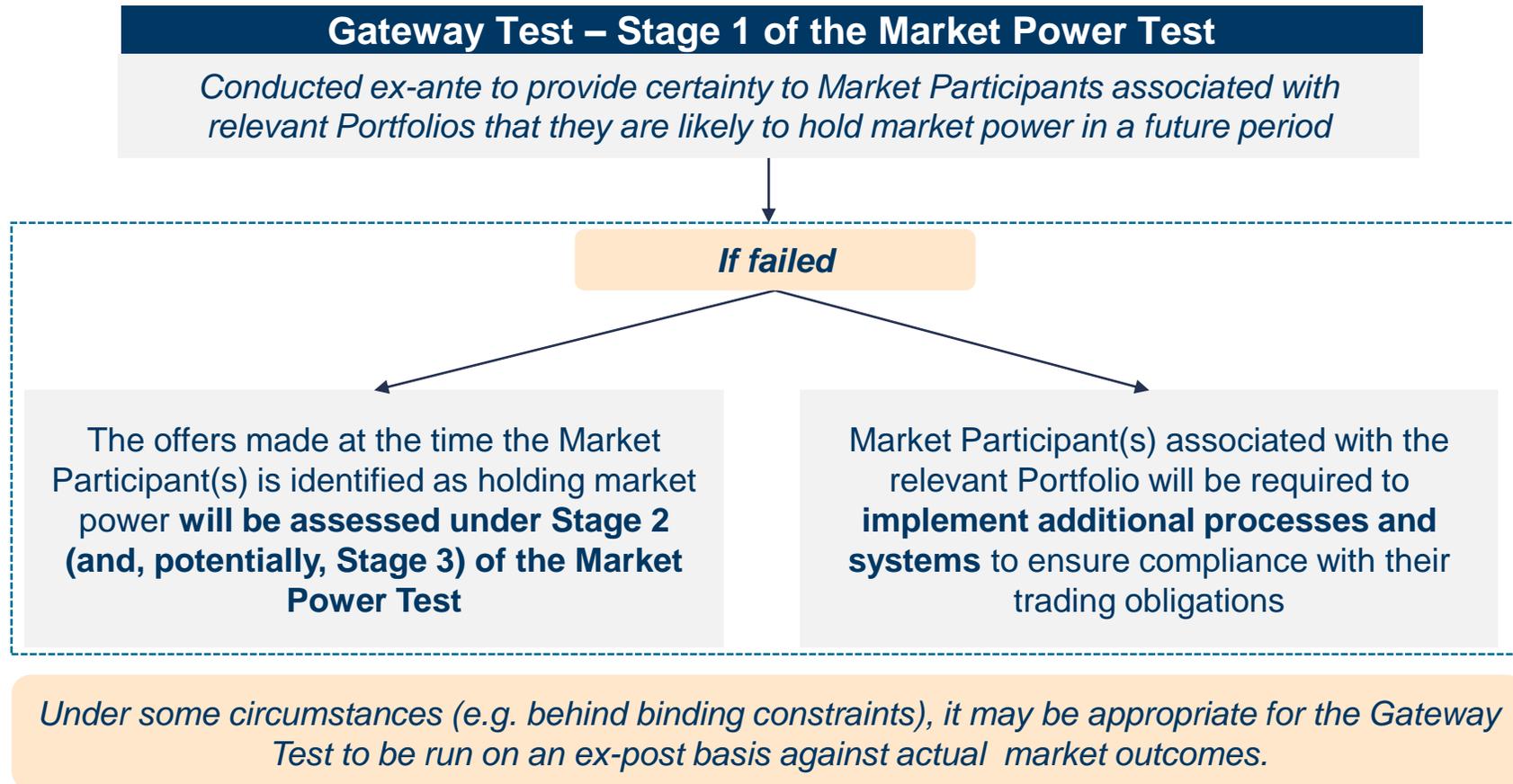
Market Power in FCESS Markets

FCESS markets would not be subject to the Market Power Test under proposed arrangements

- FCESS markets would rely on the **SESSM** process (section 3.15A WEM Rules), in combination with the **General Trading Obligations** that will apply to all Market Participants.
- 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.
- 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 its May 2021 Information Paper).

The Gateway Test – Stage 1 of the Market Power Test

An initial objective structural screen to identify whether a Portfolio owned by a single entity (or related entities) is in a position to exercise market power



Options Identified for the Gateway Test

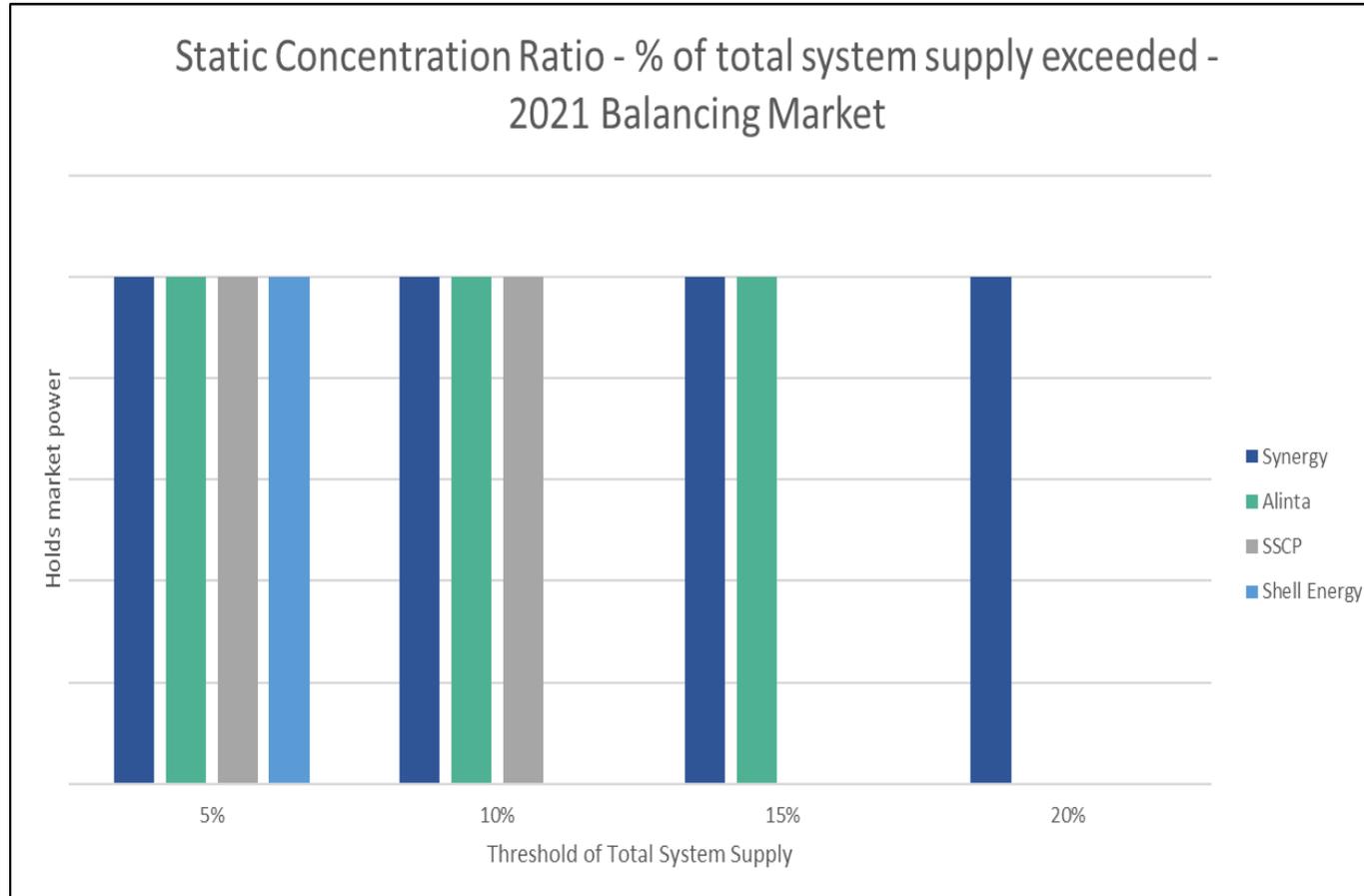
Options identified and considered further against the Guiding Principles:

- **Pivotal Supplier Tests (PSTs)** – test whether demand can be met without a Portfolio in operation. EPWA has assessed both single and multiple PSTs for implementation in the WEM.
- **Concentration Ratios (CRs)** – 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. EPWA assessed both **dynamic** and **static** variations of single supplier CRs for implementation in the WEM.

Options identified, but not considered further are:

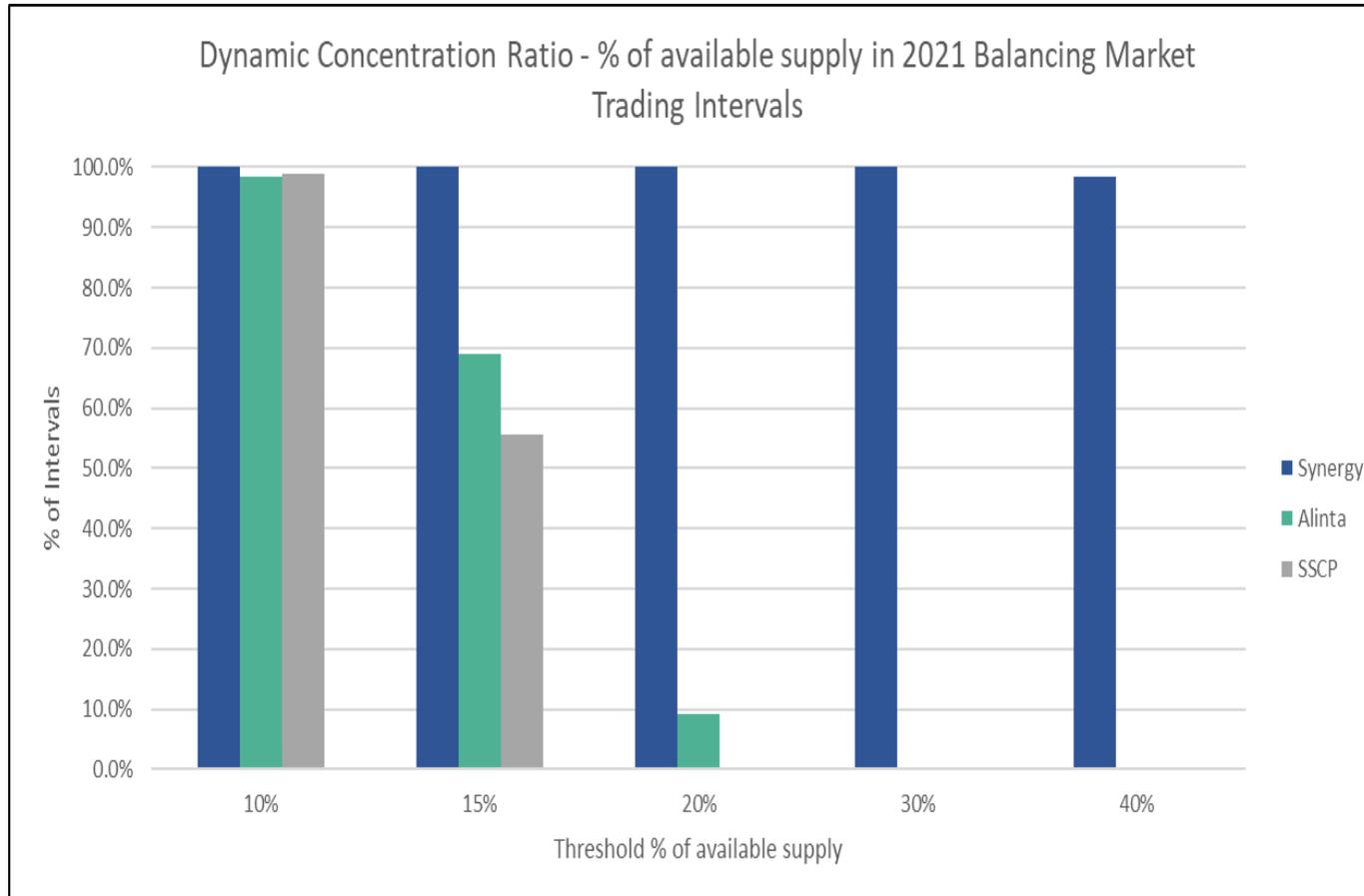
- **Market-based Concentration Screens** – tests which assess the overall competitive performance of a market (including multiple supplier CRs and the Herfindahl-Hirschman Index used in some US and European markets).
- **Simulations** – not considered as it would rely on subjective inputs to a market model, and is generally more useful in establishing regulator-determined reference prices (as in the Texas electricity market).
- **Residual Supplier Index (RSI)** – tests the proportion of demand supplied by all but the largest supplier to determine if the largest supplier holds market power (this yields similar result as a single PST).

Data analysis for Options Considered



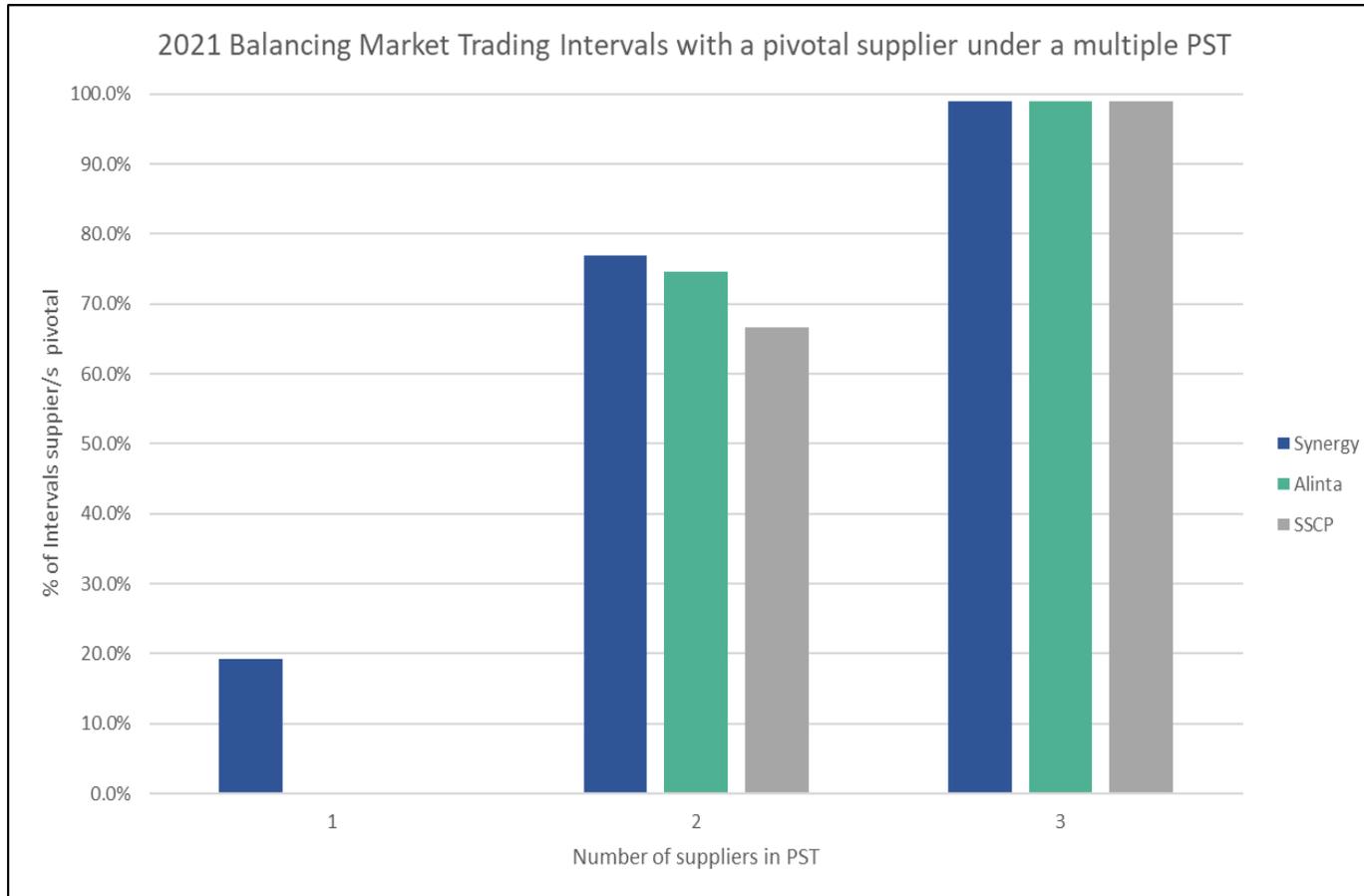
- CRs assess the competitiveness of a market and the ability of a Portfolio to influence market outcomes based purely on share of overall capacity or supply. They can be either static or dynamic.
- The static measure presented in the chart assesses a portfolio (being one or several Facilities owned by 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.

Data analysis for Options Considered (cont.)



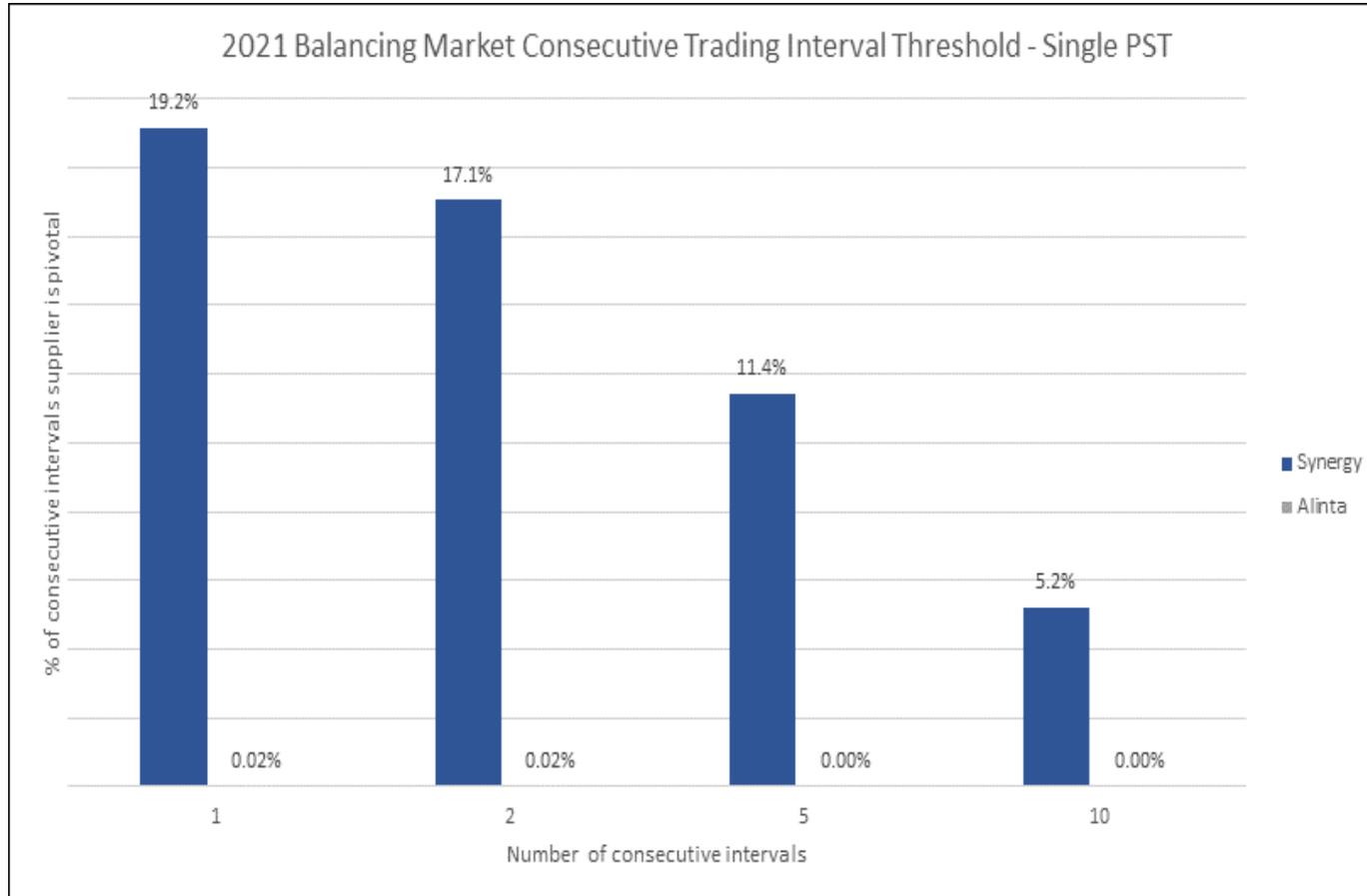
- The dynamic measure of a CR assesses market share at more regular intervals (potentially day-ahead or real-time) to identify the Portfolio as a percentage of the total available supply in the market at that point in time.
- This chart indicates whether or not a supplier holds market power by analysing 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.

Data analysis for Options Considered (cont.)



- 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 Intervals (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.

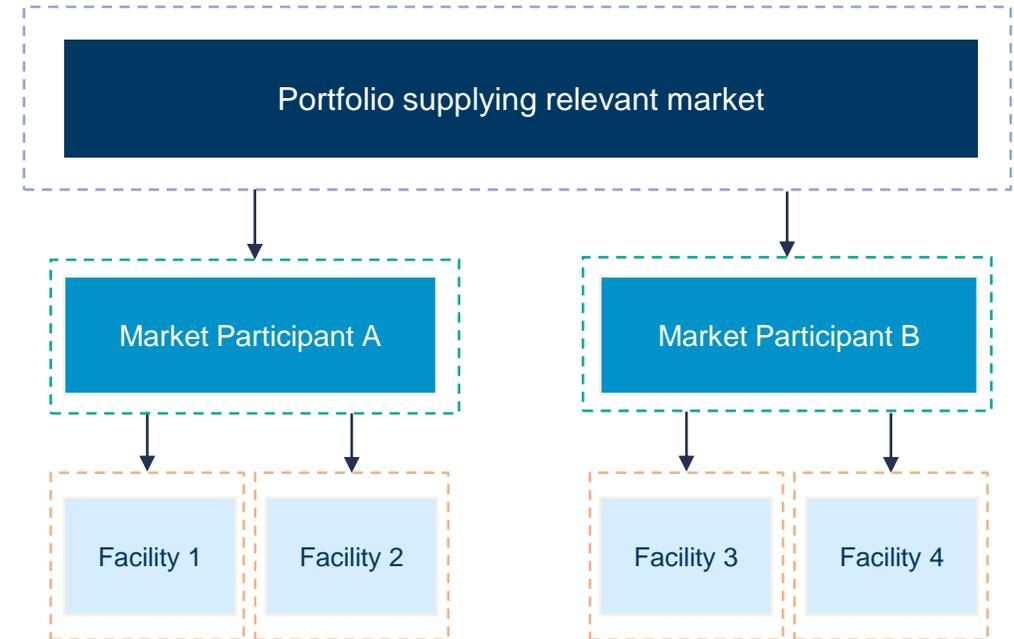
Data analysis for Options Considered (cont.)



- 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 interval threshold is applied.
- Other Portfolios are rarely pivotal in this period, based on current supply Portfolios in the WEM.

The proposed Gateway Test(s) will identify Participants and Facilities at the Portfolio level

- EPWA has considered whether the Gateway Test should be conducted at the **Facility**, **Market Participant** or **Portfolio** level.
- **EPWA's initial view** is that the Gateway Test should be run at the Portfolio level (taking into account all Facilities owned by an entity or related entities).
- This approach will allow for the assessment of offers that are likely to be coordinated under a single ownership structure
- Further, EPWA considers that this approach will mitigate potential issues with entities registering Facilities under different Market Participants to avoid scrutiny under the framework.



The Proposed Standard Gateway Test

To operate in the STEM and RTM, except behind binding constraints

Standard Gateway Test

Conducted across the entire WEM market and would identify Portfolios 'caught' by the test via a pre-determined static concentration ratio based on the percentage of a Portfolio's total capacity (in MW) relative to the total system capacity

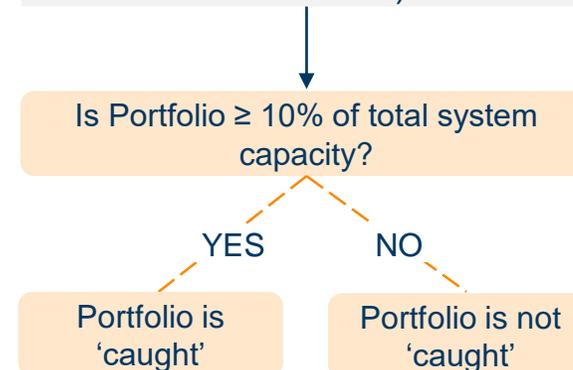
For the purposes of the Standard Gateway Test, the ERA would:

Group all registered Facilities in the WEM into Portfolios (being the Facility or Facilities owned by an entity or related entities).

Calculate the total capacity of each Portfolio based on the maximum sent-out capacity of the Facility or Facilities within that Portfolio.

Calculate the total capacity of each Portfolio as a percentage of total system capacity (the sum of the sent-out capacity of all Facilities).

- The formulation of the Standard Gateway Test applies on a forward basis only. There is no 'true up' ex-post as the running times for the test should ensure that an ex-post assessment would not yield a different result to the forward assessment.
- Test would be run every six months and would be coordinated with Reserve Capacity testing.



Market Power behind binding constraints

Why the Standard Gateway Test is not applicable behind binding constraints

- Market Participants that are offering Facilities 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.
- 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.
- 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.

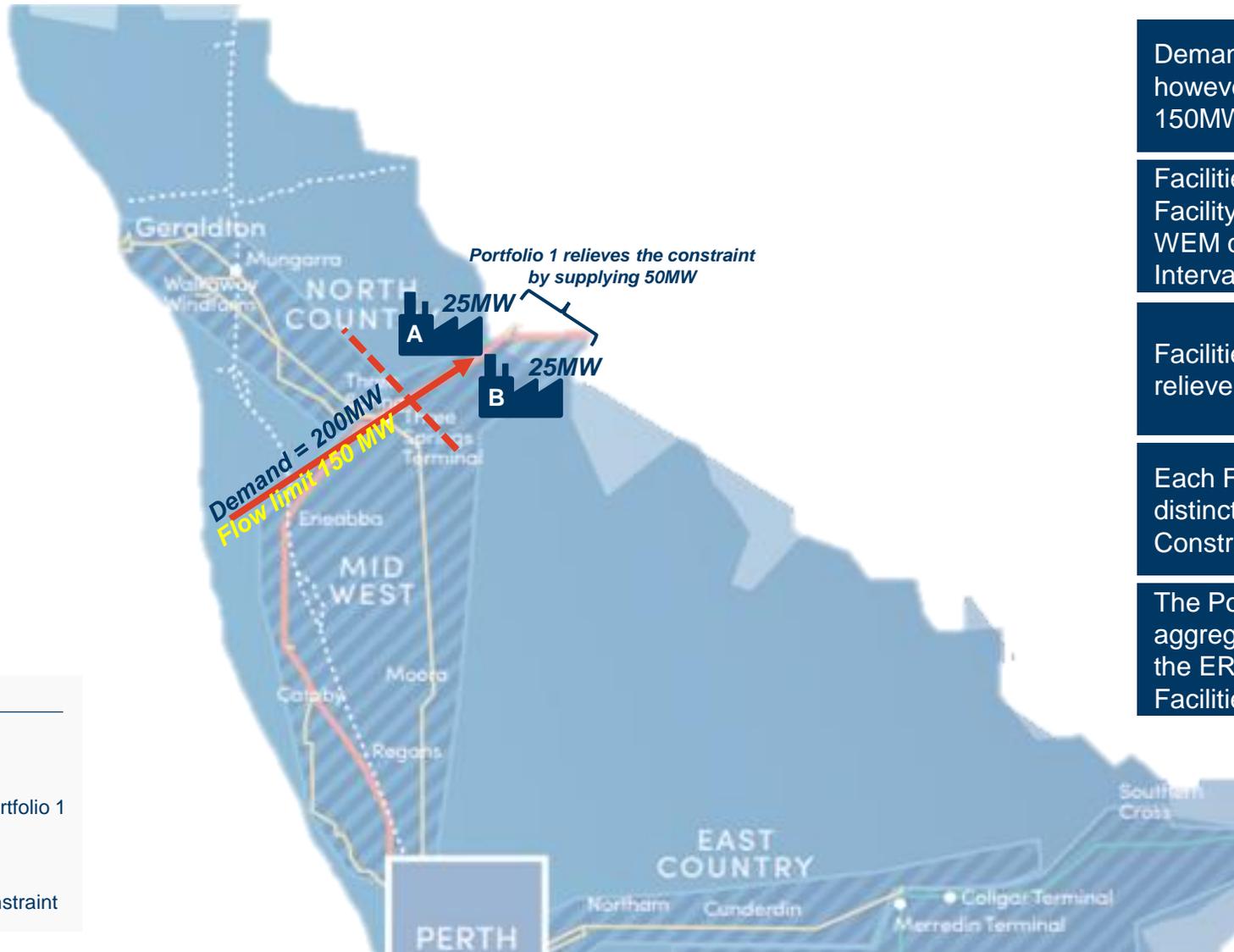
Market Power behind binding constraints (cont.)

The proposed Constrained Gateway Test

Constrained Gateway Test	EPWA expects that the Constrained Gateway Test will require the ERA to:
Would capture a Portfolio where:	
<ul style="list-style-type: none">• There are Facilities within that Portfolio that are located behind an identified binding constraint (the Constrained Portfolio)• Energy Uplift Payments have been made in respect of those Facilities in excess of 10% of distinct Dispatch Intervals (in aggregate) when the relevant constraint was binding	<ul style="list-style-type: none">• 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 number of Dispatch Intervals in which the 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 in relation to a specific constraint will be deemed to have failed the Constrained Gateway Test.

Simple Constrained Gateway Test – Hypothetical Example



Legend

-  Portfolio 1
-  Constraint

Demand behind the Network Constraint is 200MW, however the transmission limit is restricted to 150MW.

Facilities A & B comprise a single Portfolio. Each Facility is offered into the market at \$20 above WEM clearing price in a distinct 5% of Dispatch Intervals.

Facilities A & B are the only Facilities that can relieve the constraint and are both dispatched.

Each Facility receives Energy Uplift Payments for a distinct 5% of Dispatch Intervals when the Constraint binds.

The Portfolio receives Energy Uplift Payments, in aggregate, in 10% of Dispatch Intervals, triggering the ERA to undertake Offer Assessment for all Facilities within the Portfolio.

Dual Portfolio – Hypothetical Example



Legend



Facilities A & B are from one Portfolio. Facilities C & D are from another Portfolio. All Facilities are needed to relieve the Network Constraint.

Facilities A & B each offer \$20 above WEM clearing price in a distinct 5% of Dispatch Intervals in which the constraint binds.

Facilities C & D each offer \$30 above WEM clearing price in a distinct 5% of Dispatch Intervals in which the constraint binds.

Facilities A, B, C and D are dispatched and receive Energy Uplift Payments for the relevant intervals.

The ERA will investigate both Portfolios as they have both received Energy Uplift Payments in at least 10% (in aggregate) of intervals in which the constraint bound.

Potential Economic Withholding – Hypothetical Example



Legend

- A
- B
- C
- D

} Portfolio 1 (Facilities A, B, C)
} Portfolio 2 (Facility D)
- - - Constraint

Facilities A & B each offer \$20 above WEM clearing price in a distinct 5% of Dispatch Intervals in which the constraint binds (a Portfolio aggregate of 10% of Dispatch Intervals).

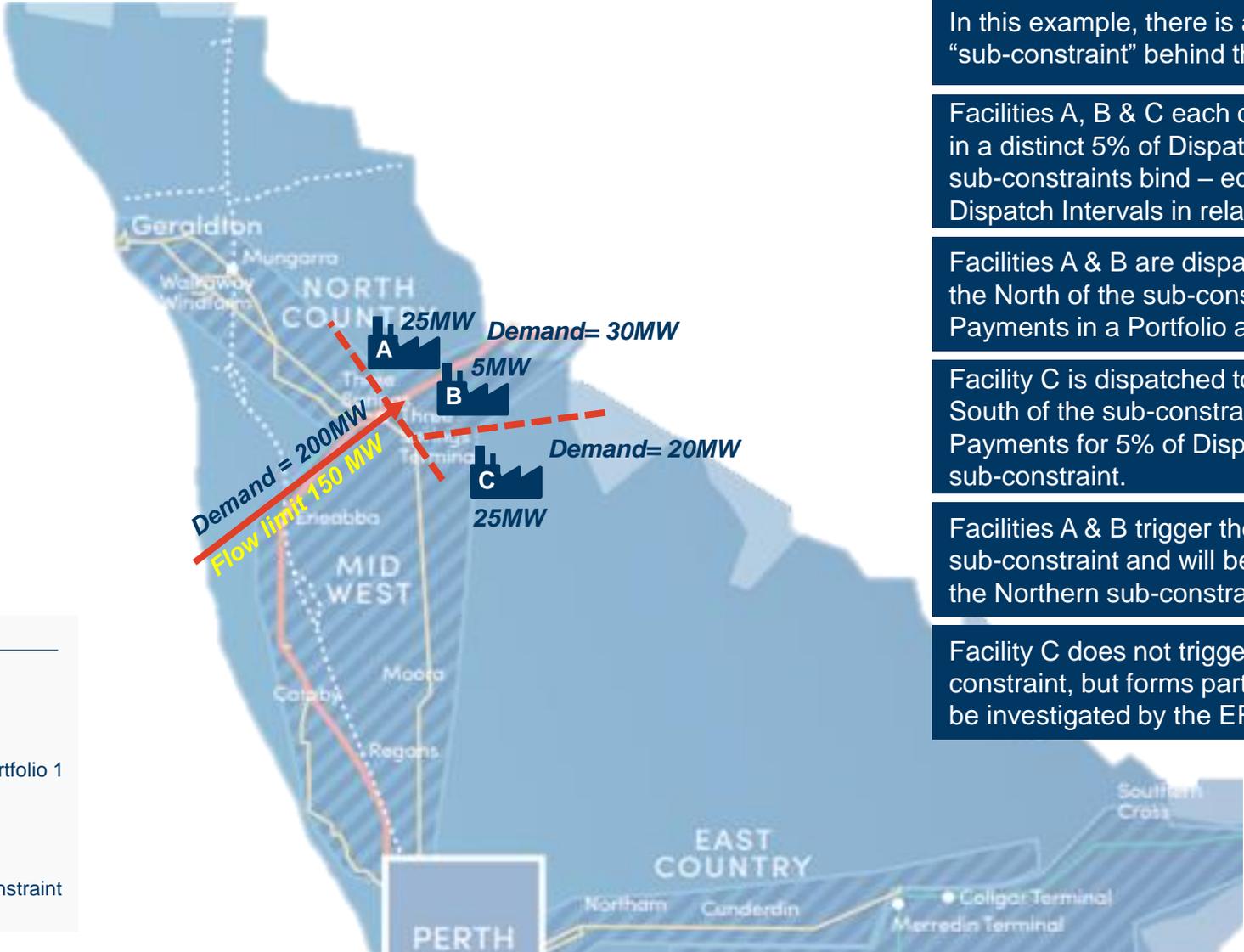
Facility C offers at the cap in 100% of Dispatch Intervals in which the constraint binds and is not dispatched.

Facility D offers \$30 above the marginal price and is not dispatched.

Facilities A & B are dispatched and receive Energy Uplift Payments for the relevant intervals.

The ERA will investigate the offers of all Facilities within the dispatched portfolio (i.e. Portfolio 1), including the Facility that was not dispatched (Facility C).

Secondary Constraint – Hypothetical Example



Legend

-    } Portfolio 1
-  Constraint

In this example, there is a primary constraint and a secondary “sub-constraint” behind the primary constraint.

Facilities A, B & C each offer \$20 above the WEM clearing price in a distinct 5% of Dispatch Intervals in which the primary and sub-constraints bind – equating to 15% (in aggregate) of Dispatch Intervals in relation to the primary constraint.

Facilities A & B are dispatched to meet the 30MW of demand to the North of the sub-constraint and receive Energy Uplift Payments in a Portfolio aggregate of 10% of Dispatch Intervals.

Facility C is dispatched to meet the 20MW of demand to the South of the sub-constraint and receives Energy Uplift Payments for 5% of Dispatch Intervals related to the Southern sub-constraint.

Facilities A & B trigger the Portfolio threshold of 10% within the sub-constraint and will be investigated by the ERA in relation to the Northern sub-constraint.

Facility C does not trigger the 10% threshold behind the sub-constraint, but forms part of the same Portfolio as A & B and will be investigated by the ERA in relation to the primary constraint.

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

Offer Assessment

Stage 2 of the Market Power Test

- Market Participants that are identified through the Gateway Test under Stage 1 will progress through to **Offer Assessment under Stage 2 of the Market Power Test**.
- 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
- Offer Assessment would take place in respect of the offers made by relevant Market Participants for Facilities in a Portfolio 'caught' by the Gateway Test in relevant Trading Intervals (i.e. when the Portfolio within which the Facility sits is caught by either Gateway Test).
- 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.

Offer Assessment – The Offer Construction Guideline

Unconfirmed Element (b): EPWA has conducted further analysis of this element of the MPM Framework

- Consistent with early analysis provided to TDOWG in its last meeting, EPWA proposes that Offer Assessment under Stage 2 of the Market Power Test be conducted using **a guidance-based approach**.
- Under this approach the WEM Rules will require the ERA to make a determination on relevant offers 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.*
- Market Participants would ‘fail’ the Offer Assessment of the Market Power Test if the ERA determined that prices offered were inconsistent with assessment requirements in the WEM Rules and the Offer Construction Guideline.

The **Offer Construction Guideline** would set 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.

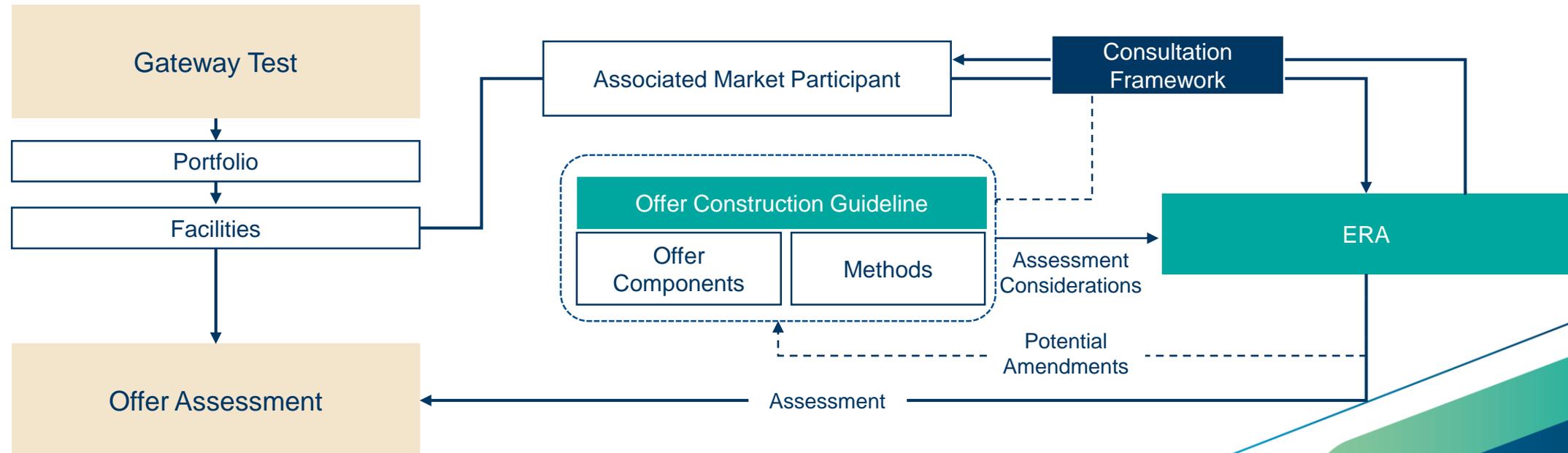
Any relevant **regulatory costs or allowances**

Reasonable amortisation of costs across Trading and Dispatch Intervals

Offer Assessment – Pre-approval of Offer Parameters

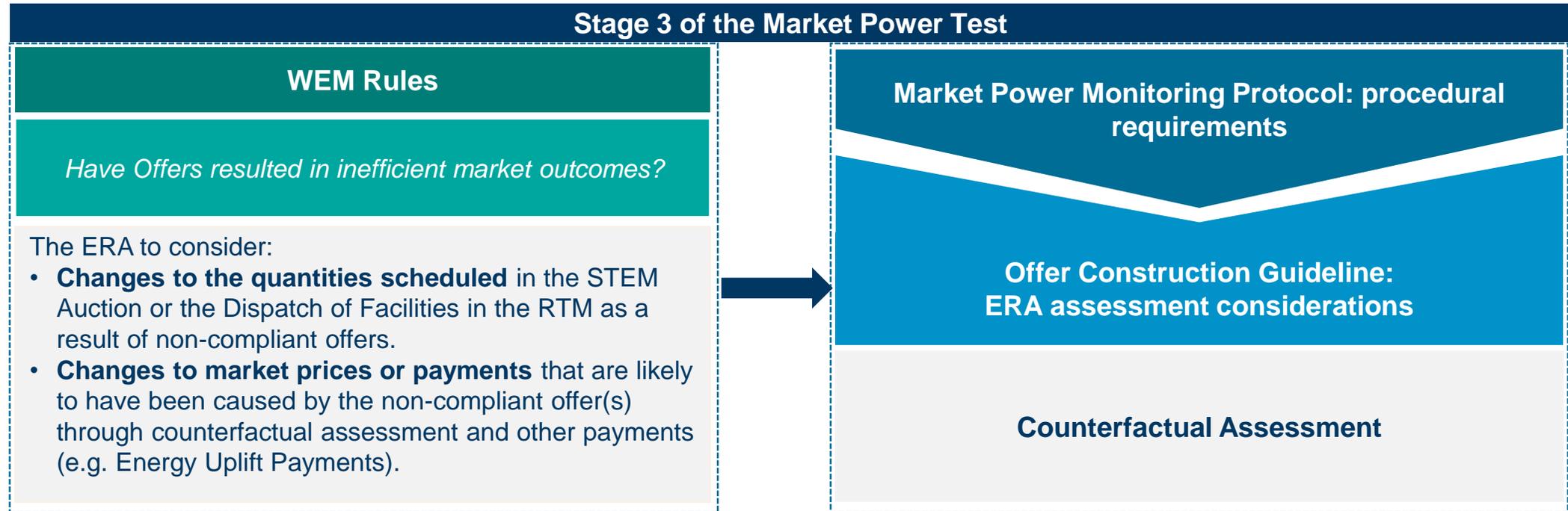
Unconfirmed Element (c): EPWA has conducted further analysis of this element of the MPM Framework

- Given the risk to market efficiency and the potential regulatory burden associated with binding arrangements, EPWA does not propose to adopt a Pre-approval Framework under the Proposed Design.
- Instead, it is proposed that the WEM Rules 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 through a “Consultation Framework”.



The Market Impact Test

Stage 3 of the Market Power Test



The objective of the Market Impact Test would be to identify the impact of relevant offers on market competition, market clearing prices and other payments (such as Energy Uplift Payments), and quantities scheduled in respect of Market Participants in the STEM Auction, or the Dispatch of Facilities in the RTM.

Level of Guidance to be Provided to the ERA

Unconfirmed Element (d): EPWA has conducted further analysis of this element of the MPM Framework

- EPWA considers that a balanced approach should be adopted on the level of prescription provided to the ERA in the WEM Rules as to how it undertakes the Market Power Test.
- For complex matters, i.e. Offer Assessment and the Market Impact Test, EPWA considers that the ERA should be provided with some discretion as to how it conducts the relevant assessment – outlined in guidance material.
- Where less nuanced decision making is required by the ERA, for example the Gateway Test, providing more prescriptive criteria is likely to be practicable and provide certainty to participants.
- Under the proposed model, the WEM Rules would outline high level elements and key objectives of the Market Power Test, and require the ERA to provide further guidance as necessary.

Level of Guidance to be Provided to the ERA

EPWA considers the following level of guidance is consistent with its proposed approach

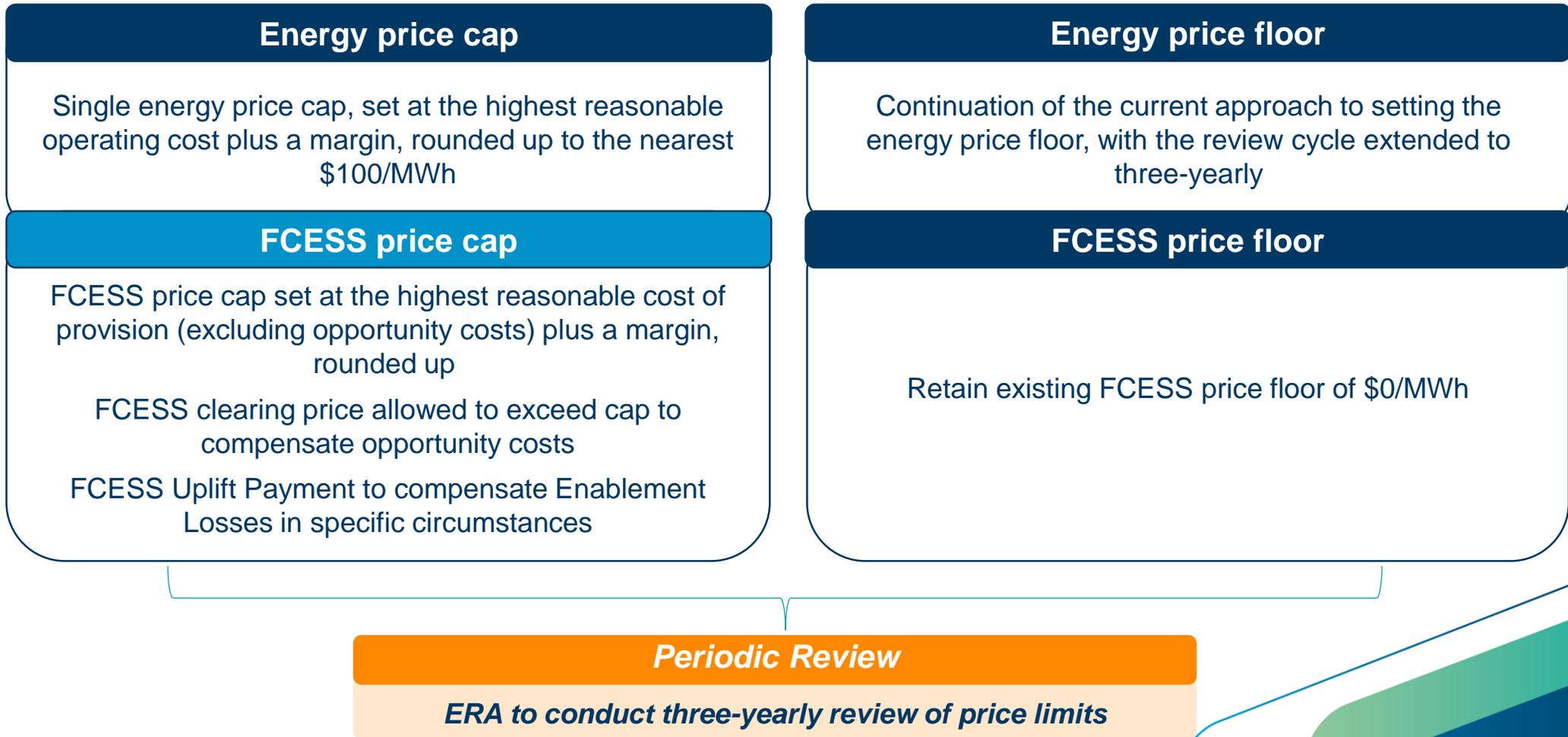
	Market Power Test Stages		
	Gateway Test	Offer Assessment	Market Impact Test
Core Structural Elements in <u>WEM Rules</u>	Yes	Yes	Yes
Assessment Objectives in <u>WEM Rules</u>	No – process set out in the WEM Rules, assessment objective unnecessary	Yes	Yes
<u>Guidelines</u> on interpretation of binding assessment objectives	No – process based	Yes	Yes
Market Power Monitoring Protocol (<u>WEM Procedure</u>)	Yes – additional process elements	Yes – process elements only	Yes – process elements only

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 able to commence investigation or enforcement activities for breach of the Offer Construction Obligation in relation to those particular offers.
- The ERA would not be prohibited from examining the general **conduct** of a Market Participant that ‘passed’ the Market Power Test, nor its compliance with other obligations under the WEM Rules (e.g. compliance with dispatch instructions).
- **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.
- Proposals strike 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.

Price Limits – Summary of initial views

Unconfirmed Element (e): EPWA has conducted further analysis of this element of the MPM Framework



FCESS Price Limits

FCESS Price Cap

Three options were assessed, applying different approaches to compensation of opportunity costs

Option 1

Set price cap at highest reasonable operating cost, excluding opportunity costs plus a margin

- FCESS clearing price can exceed price cap to compensate opportunity costs
- FCESS Uplift Payment to compensate Enablement Losses in appropriate circumstances

Option 2

Set price cap high enough to allow forecast Enablement Losses to be included in offers

- May be orders of magnitude greater than Option 1
- ERA would need to closely scrutinise offers to ensure that only reasonable forecast losses were included in offers

Option 3

No FCESS price cap

In effect, Option 1 calculates and compensates actual Enablement Losses ex-post, whereas Options 2 and 3 rely on estimation of Enablement Losses ex-ante and greater ex-post scrutiny

FCESS Price Limits

FCESS Price Cap – further detail of Option 1

- **EPWA's initial view**: Option 1 is best aligned with the Guiding Principles.
 - This option maximises protection of consumers from extraction of abnormal profits while allowing for recovery of efficient costs, reduces costs for consumers, and optimises certainty for Market Participants and regulatory effort.
- Key components:
 - FCESS price cap would apply to offers for all FCESS markets
 - Clearing price allowed to exceed the price cap to compensate opportunity costs
 - ERA to determine the price cap every three years
 - Potential for indexation within the review cycle (related to inflation and/or fuel costs), and for a 're-opener' mechanism (initiated by the ERA unilaterally, or in response to a Participant request)

FCESS Price Limits

FCESS Uplift Payment – further detail of Option 1

- A Facility may receive FCESS Uplift Payment where it is needed for FCESS but would not otherwise be required for energy. In this circumstance, WEMDE clearing prices may not compensate the facility for the opportunity costs associated with its min-gen level
- Formula is taken from the gazetted WEM Rules (glossary definition for Estimated Enablement Losses)
- Eligibility to be limited to circumstances where:
 - The facility is enabled to provide a FCESS in that Dispatch Interval
 - The energy Dispatch Target in that Dispatch Interval \leq EM + FCESS Lower enablement

Estimated Enablement Losses: For a Registered Facility in a Dispatch Interval is:

$$EL = \text{Max}(0, LF * EM * (LFAOP - MCP))$$

Where:

EM is the Enablement Minimum;

LF is the Loss Factor for the Registered Facility.

LFAOP is the Loss Factor Adjusted Price in the Price-Quantity Pair for energy in the Real-Time Market Submission which corresponds to the Enablement Minimum Quantity; and

MCP is the Energy Market Clearing Price in that Dispatch Interval based on the Market Schedules published by AEMO.

Scenario C: demonstration of FCESS Uplift Payment

Facility F4 is made whole by the FCESS Uplift Payment

Facility F1 (In-Service)

Min-gen: 10 MW
 Energy:
 ▶ 60 MW @ -\$1,000/MW
 ▶ 40 MW @ \$500/MW
 ESS Lower:
 ▶ 20 MW @ \$3/MW

Facility F2 (In-Service)

Min-gen: 5 MW
 Energy: 100 MW @ -\$999/MW
 ESS Lower: 20 MW @ \$1/MW

Facility F3 (Available)

Min-gen: 20 MW
 Energy: 50 MW @ \$100/MW
 ESS Lower: 30 MW @ \$4/MW

Facility F4 (In-Service)

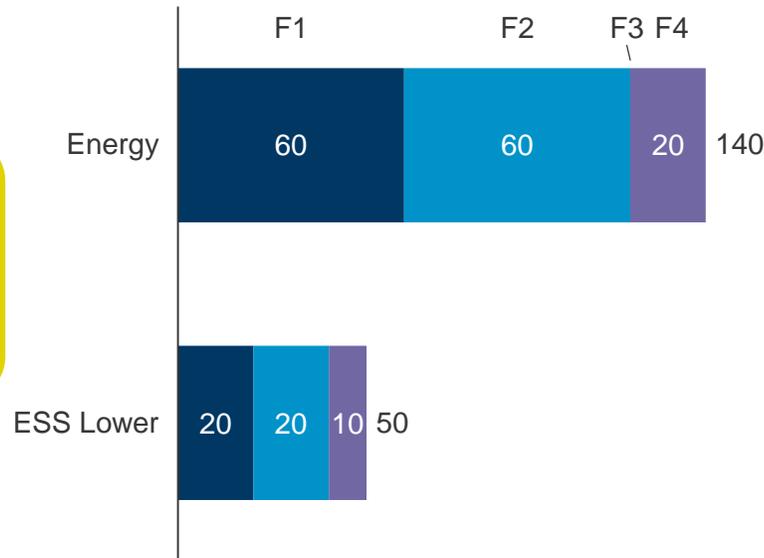
Min-gen: 10 MW
 Energy: 40 MW @ \$150/MW
 ESS Lower: 40 MW @ \$5/MW

Requirements

Energy: 140 MW
 ESS Raise: 50 MW

Price limits

Energy: -\$1,000 to \$600/MW
 ESS Raise: \$0 to \$200/MW



Energy price = -\$999/MW
 ESS Lower price = \$1,154/MW

Total system cost (1 hr) = -\$116,810

Facility F4

Total cost =	\$ 3,050
Energy revenue =	-\$19,980
ESS revenue =	\$11,540
FCESS Uplift Payment =	\$11,490
Profit/loss =	\$ 0

Scenario D: uncapped FCESS market, no uplift

Total system cost is greater, despite lack of FCESS Uplift Payment

Facility F1 (In-Service)

Min-gen: 10 MW
 Energy:
 ▶ 60 MW @ -\$1,000/MW
 ▶ 40 MW @ \$500/MW
 ESS Lower:
 ▶ 20 MW @ \$3/MW

Facility F2 (In-Service)

Min-gen: 5 MW
 Energy: 100 MW @ -\$999/MW
 ESS Lower: 20 MW @ \$1/MW

Facility F3 (Available)

Min-gen: 20 MW
 Energy: 50 MW @ \$100/MW
 ESS Lower: 30 MW @ \$2,202/MW

Facility F4 (In-Service)

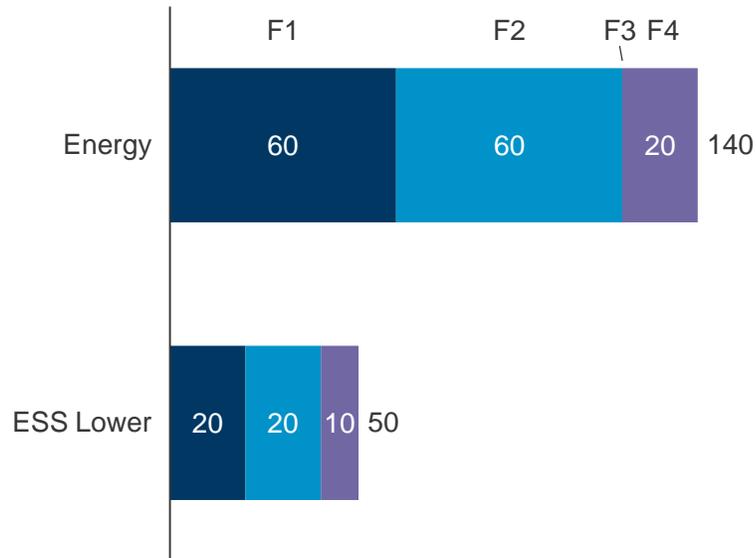
Min-gen: 10 MW
 Energy: 40 MW @ \$150/MW
 ESS Lower: 40 MW @ \$1,154/MW

Requirements

Energy: 140 MW
 ESS Raise: 50 MW

Price limits

Energy: -\$1,000 to \$600/MW
 ESS Raise: \$0/MW minimum



Energy price = -\$999/MW
 ESS Lower price = \$2,303/MW

Total system cost (1 hr) = -\$105,320

Facility F4

Total cost =	\$ 3,050
Energy revenue =	-\$19,980
ESS revenue =	\$23,030
FCESS Uplift Payment =	\$ -
Profit/loss =	\$ 0

Scenario E: two facilities needed just for ESS

Multiple facilities can be eligible for, and be made whole by, FCESS Uplift Payment

Facility F1 (In-Service)

Min-gen: 10 MW
 Energy:
 ▶ 60 MW @ -\$1,000/MW
 ▶ 40 MW @ \$500/MW
 ESS Lower:
 ▶ 20 MW @ \$3/MW

Facility F2 (In-Service)

Min-gen: 5 MW
 Energy: 100 MW @ -\$999/MW
 ESS Lower: 20 MW @ \$1/MW

Facility F3 (In-Service)

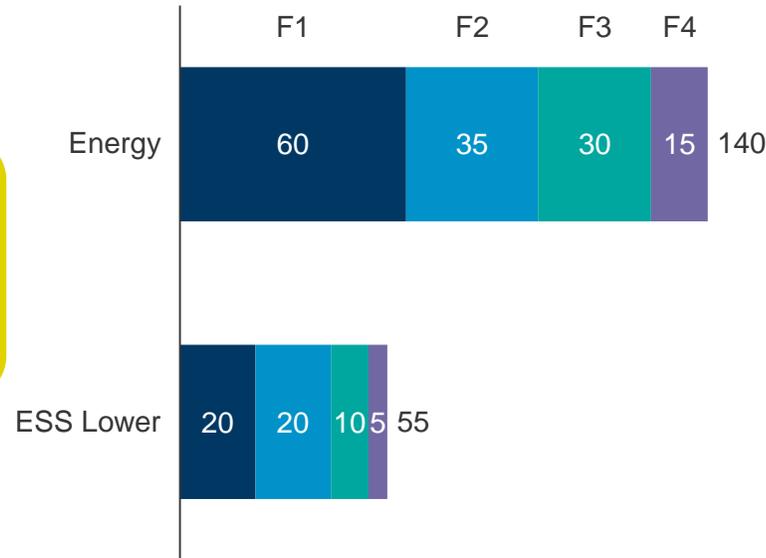
Min-gen: 20 MW
 Energy: 50 MW @ \$100/MW
 ESS Lower: 10 MW @ \$4/MW

Facility F4 (In-Service)

Min-gen: 10 MW
 Energy: 40 MW @ \$150/MW
 ESS Lower: 10 MW @ \$5/MW

Requirements
 Energy: 140 MW
 ESS Raise: 55 MW

Price limits
 Energy: -\$1,000 to \$600/MW
 ESS Raise: \$0 to \$200/MW



Energy price = -\$999/MW
 ESS Lower price = \$1,154/MW
 Total system cost (1 hr) = -\$89,570

Facility F3

Total cost =	\$ 3,040
Energy revenue =	-\$29,970
ESS revenue =	\$11,540
FCESS Uplift Payment =	\$21,980
Profit/loss =	\$ 510

Facility F4

Total cost =	\$ 2,275
Energy revenue =	-\$14,985
ESS revenue =	\$ 5,770
FCESS Uplift Payment =	\$11,490
Profit/loss =	\$ 0

Roles and Responsibilities

ERA	Market Participants	Coordinator of Energy	AEMO
<ul style="list-style-type: none"> • Develop an Offer Construction Guideline and Trading Conduct Guideline • Develop and publish a new WEM Procedure, the Market Power Monitoring Protocol • Consult with, and provide guidance to, Market Participants on 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 and the Constrained Gateway Test • Carry out Offer Assessment • Carry out the Market Impact Test • 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) 	<ul style="list-style-type: none"> • 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 (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) 	<ul style="list-style-type: none"> • Periodically review 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 	<ul style="list-style-type: none"> • Provide information to the ERA necessary for it to carry out the Market Power Test and other monitoring functions

Questions?

*We're working for
Western Australia.*

Appendix

Analysis of options against Guiding Principles

Options	Guiding Principle 1: Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power	Guiding Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation	Guiding Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs	Guiding Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions
1. Concentration Ratios	✓	✓	✓	✓
2. Single PST	✗	✗	-	-
3. Alternative PST	✓	✗	-	-
Assessment:	<ul style="list-style-type: none"> None of the Options identified constrain the efficient recovery of costs, given that they merely provide a flag to the ERA. Only Options 1 and 3 provide adequate protection to consumers as Option 2 captures instances of market power the least. Adopting a Single PST, may result in only one Portfolio being identified for further assessment. This would create the risk that the conduct of other relevant Market Participants is ignored, potentially reducing the consumer protections. 	<ul style="list-style-type: none"> All Options would provide greater certainty than currently exists, and the potential for less ex-post investigation and litigation. The Static CR method is likely to provide the most robust level of certainty because it does not need an ex-post 'true up' based on actual market outcomes that is required under other options. 	<ul style="list-style-type: none"> 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. 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. 	<ul style="list-style-type: none"> All options considered could be subject to periodic review by the Coordinator of Energy. On balance, CR methods are likely to be slightly easier to review and amend owing to the simplicity of the method.

✓ Meets principle

■ Partially meets principle

✗ Unlikely to meet principle

Analysis of options against Guiding Principles

Options	Guiding Principle 1: Ensure recovery of efficient costs by producers and protection of consumers from exploitation of market power	Guiding Principle 2: Provide ex-ante certainty to promote market efficiency while reducing ex-post investigation and litigation	Guiding Principle 3: Ensure regulatory effort is proportionate to risk and that benefits of competition outweigh regulatory costs	Guiding Principle 4: Recognise the need for ongoing review to ensure mechanisms are appropriate to changing market conditions
1. Low cap with uplift payments	✓	✓	✓	✓
2. High price cap	✗	✗	✗	✗
3. No price cap	✗	✗	✗	✓
Assessment:	<ul style="list-style-type: none"> Option 1 provides greatest protection for consumers against extraction of abnormal profits. Options 2 and 3 may result in Market Participants being compensated for losses that did not eventuate, and double-payment of costs across multiple markets. Options 2 and 3 result in all participants being compensated for the Enablement Losses incurred by one provider, providing windfall gains at the expense of consumers. 	<ul style="list-style-type: none"> Option 1 retains a reference to operating costs, consistent with the Market Power Test. Options 2 and 3 have less certainty around when and how the ERA will monitor and investigate FCESS offers. ERA scrutiny will require detailed analysis of the contemporaneous information that informed participants' decision-making. 	<ul style="list-style-type: none"> Option 1 requires greater regulatory effort to conduct three-yearly reviews of the price cap. However, this review may provide valuable information for the rest of the Market Power Mitigation framework and broader market monitoring. Further, the analysis would be necessary for the SESSM functions. Options 2 and 3 place greater reliance on ERA monitoring and investigations. 	<ul style="list-style-type: none"> The potential for indexation and in-cycle reviews under Option 1 provide flexibility to adjust to changing circumstances, as compared to the status quo. Option 2 would require the rule change process, which is less flexible than the adjustment mechanisms under Option 1. Option 3 requires no price cap setting process

✓ Meets principle

▣ Partially meets principle

✗ Unlikely to meet principle

12. Price Limits

Unconfirmed Element (e): EPWA has conducted further analysis of this element of the MPM Framework

- 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, on the basis of the framework provided above.

12.1 Energy Price Limits

Energy Price Cap

- **EPWA's initial view**: a single cost-based energy price cap is best aligned with the Guiding Principles.
 - Price cap based on operating costs of Facilities within the market, so better reflects actual market requirements and efficient market outcomes to ensure consumers are protected against the extraction of abnormal profits.
 - Allows for reduced regulatory effort, while retaining the ability to adapt to changing circumstances.
- Key components:
 - The energy price cap applies to energy offers and clearing prices.
 - The ERA will determine the energy price cap every three years based on estimates of reasonable operating costs for the most expensive facility or facilities in the SWIS, plus a margin and rounded up to the nearest \$100/MWh.
 - No specific technology would be prescribed in the WEM Rules.
 - 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.

12.2 Energy Price Limits

Energy Price Floor

- **EPWA's initial view**: 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, given the rarity of price floor events;
 - will reduce regulatory effort by reducing the review frequency; and
 - provisions for in-cycle reviews will allow for adaptation to changing circumstances.

12.4 FCESS Price Limits

FCESS Price Floor

- **EPWA's initial view**: 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.
- This is consistent with many other jurisdictions, including the NEM, California and Texas
- EPWA considers that this approach:
 - Is unlikely to constrain the recovery of efficient costs, given that no circumstances have been identified in which a provider would wish to offer at negative prices; and
 - Minimises regulatory effort by fixing the price floor in the WEM Rules for a parameter for which flexibility does not appear to be necessary.

12.2 FCESS Price Limits – findings of case studies

FCESS Price Cap and FCESS Uplift Payment

1. WEMDE should be able to successfully select lowest cost option, accounting for min-gen level.
2. Option 1 results in lower market costs for consumers, compared with allowing forecast Enablement Losses to be included in offer prices and paid to all providers of the relevant FCESS.
3. The current formula in the definition of Estimated Enablement Losses will adequately compensate Market Participants.
4. Participants may incur a small loss during ramping periods, but the materiality is likely to be small and it should be able to be recovered through offer prices as a start-up cost.
5. A participant could increase the FCESS Uplift Payment by increasing its energy offer prices – this would come to the attention of the ERA.
6. A Market Participant would lose money if it sought to bring a facility online purely to take advantage of the FCESS Uplift Payment.

