

28 April 2021

Ms Dora Guzeleva Energy Policy WA

Via email: energytransformation@energy.wa.gov.au

Dear Ms Guzeleva

#### MARKET POWER MITIGATION IN THE WHOLESALE ELECTRICITY MARKET

The Australian Energy Market Operator (AEMO) welcomes the opportunity to provide this submission in response to the consultation paper entitled "Proposals for changes to Market Power Mitigation Mechanisms" published on 31 March 2021. This covering letter outlines some high-level principles and observations regarding the proposed changes to market power mitigation in the Wholesale Electricity Market Rules. AEMO's detailed submission in response to the proposed changes to market power mitigation is outlined in Attachment 1.

The consultation paper suggests that AEMO implements automated Pivotal Supplier Testing (PST) in the WEM's Short Term Energy Market (STEM), real time energy, and Essential System Services (ESS) markets. AEMO believes the timing of implementing the PST in its market systems should be considered once the detailed design of the PST is determined. The PST can be determined by data which is generated by a range of means and this creates a continuum of complexity which is further outlined in Attachment 1. This continuum also represents different implications for the cost, timeline and the risk associated with the delivery of the Security Constrained Economic Dispatch (SCED) project. The development of the PST mechanism will occur in association with the development of the SCED mechanism and hence could potentially impact the resourcing requirements for that time critical project. AEMO recommends that the extent of any impacts on the SCED project should be determined first, so as to inform the approach to the implementation of the PST.

AEMO looks forward to working with the Energy Transformation Implementation Unit (ETIU) to advance the detailed design of the PST mechanism. This design should clearly detail core-functionality such as network constraints, pre-processing requirements for bids and offers, analysis obligations, governance provisions, and communication of results and data between various Rule Participants.

If you would like to discuss any matters raised in this submission, please contact Simon Middleton on 0409 581 482.

Yours sincerely

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# Attachment 1: AEMO's detailed submission in response to the proposed changes to market power mitigation in the Wholesale Electricity Market Rules

#### Market Power Mitigation Timeline

Under the proposed changes to the Market Power Mitigation Mechanism, AEMO has been recommended to implement automated Pivotal Supplier Testing (PST) within the WEM for the STEM, real time energy, and ESS markets. The detail of how this testing will function is expected to be released by Energy Policy WA (EPWA) in the second half of 2021. The consideration of implementation and transitional matters is expected to occur following this release. Once the fundamental elements of the detailed design are known with greater clarity, AEMO will be required to integrate the implementation of the PST into the implementation of the wider reforms. The interface between the implementation of the PST and other aspects of the WEM Reform Program will be determined, after which the PST implementation project delivery timeline will be determined.

#### Rule Requirements

AEMO does not initially require the gazettal of rules to progress the PST, however, it is necessary that the fundamental elements of the detailed design of the PST are finalised and clearly documented. Based on its present SCED implementation plan, AEMO would need the detailed design of the PST completed by August 2021 to have any chance of including the PST within the SCED go-live. This detailed design requirement extends beyond clarity regarding the core functionality, but also encompasses such things as governance provisions, obligations on AEMO and the ERA that arises from the completion of each test, the handling of information between parties, publication of results and associated data, and handling of requests for additional automated or ad-hoc analysis to be conducted by AEMO. The original scope of SCED did not include the PST and as such the PST will be a scope variation. Preliminary discussions with vendors have indicated that the time available to deliver the original scope of SCED is challenging so additions to this scope compound this challenge. At this point, prior to the completion of the detailed design, it is not possible to determine the implications for the cost and timeline implications for the delivery of SCED. It is axiomatic, however, that the more complex the design of the PST, the greater the risks are to the delivery timeline and cost of SCED.

AEMO recommends that the fundamental aspects of the PST are incorporated within the WEM Rules so that any changes to the functionality would require a rule change process. The consultation paper mentions that modifications to the ERA's Monitoring Protocol would be required but is not specific about whether the PST would be described in the Rules or a WEM Procedure.

## Rule Commencement

The PST is closely coupled with SCED, and consequently the systems will have shared components in their implementation processes. The timeframe given by ETIU for the release of the detailed



PST functionality coincides with the development phase of SCED's pre-processor, core-solver and output-processor.

AEMO views adding further requirements (such as a PST) prior to the new WEM go-live date that is targeted for 1 October 2022 will put the already challenging delivery of SCED at further risk. The scope for SCED has been agreed to and changes added midway through the project (from the Market Power Mitigation workstream or any other project) will be difficult to introduce without causing delay arising from a change to the vendor tendering and delivery process.

An array of options for the PST exist. A simpler design for the PST may be worthy of consideration if such a design would be less problematic from a timing perspective. If a more complex design is deemed preferable by ETIU then the commencement of PST obligations may need to be deferred until after go-live. This may be necessary to ensure that the implementation of the PST would be unencumbered by AEMO resourcing and vendor constraints. However, this option may have a greater cost. AEMO suggests that an assessment is required to determine when the obligations associated with the PST should take effect relative to the existing commencement date for the wider reforms for the new market.

# **Design Considerations**

AEMO recommends an appropriate complexity for the design of the PST is considered given the range of pertinent factors. These factors include:

- a. the size of the WEM;
- b. the Economic Regulation Authority's requirements for the mechanism (e.g. what form of Market Power is to be captured, and the intended frequency of exceeding thresholds);
- c. the commencement of associated rule obligations; and,
- d. the relationship between the design complexity and its implications for the cost and timeline for SCED's implementation and ongoing operations.

The complexity of implementing the PST can only be estimated fully by AEMO following the finalisation of the detailed design, and is dependent on:

- Network constraints to determine locational Market Power. To implement this functionality AEMO would need to develop systems that consider:
  - 1. Pre-processed quantities offered into the market to determine the capability of each Facility in a given interval. The pre-processing will contribute to capturing transient market power opportunities that arise (e.g. after a system event), but the extent of any pre-processing requirements could increase the complexity of implementing the mechanism. The pre-processing options include accounting for outages, ramp-rate limitations, ESS Trapeziums, Dispatch Forecasts, Dispatch Inflexibility Profiles, In-Service/Available/Unavailable Capacity etc. If the requirements of the pre-processor are too unique relative to WEMDE, the development may have to occur separately.
  - 2. The relationship of the Facility capabilities to that of the portfolio for each Market Participant. This would be complicated by a portfolio containing opposing constraint



coefficients within a single constraint equation, requiring a methodology that considers the undispatched capacity on the opposing side of the constraint and the actual dispatch level of Facilities with negative constraints.

- 3. Record every binding network constraint within the dispatch engine.
- 4. Determine each Market Participant's ability to relieve the binding constraint.
- 5. Run a PST for each constraint.
- Counter-factual scenarios. AEMO recommends that this is avoided unless deemed essential for the functionality of the PST. This would require AEMO to run multiple calculations for a range of scenarios to determine what the pricing outcomes would be if no Market Power was present. These scenarios may have to be individually constructed which could result in significant resourcing requirements. To automate this process would be a considerable undertaking both from a design and implementation basis, and it is unclear who the head of power would be as it would need input from both the ERA and AEMO.
- Participant grouping. Is it intended that Market Participants be considered individually, or grouped according to the ownership structures that exist within the market? What processes are required to keep these groupings up to date, and which governing body would oversee these processes?
- Scheduling of the PST. AEMO recommends that the PST is run after the dispatch engine has determined a solution for a given interval. This avoids the requirement for parallel calculations and will minimise the number of calculation instances required since the system conditions will be known (e.g. state of the network at the time of dispatch, End of Interval SCADA MW readings etc).
- Transfer/communication of PST results to the ERA. This will require protocols in place between the ERA and AEMO, and provisions will need to be made about how the data is presented (such as raw values, accumulated/aggregated summaries etc). If post-processing of the PST results is required, this will require additional time for implementation.

## <u>Conclusion</u>

The PST can take a range of forms with varying degrees of complexity and different implications for its cost, implementation timeline and the implementation timeline of other reforms such as SCED. AEMO recommends that the commencement date of PST obligations are considered relative to the implications for the delivery timeline for the wider reform projects. If ETIU conclude that the PST must be operational by the already challenging targeted October 2022 go-live, then this will impact the detailed design of the PST AEMO requires by August 2021 and some of the more complex functionality of the PST may need to be excluded. AEMO looks forward to working with ETIU to develop the detailed design to ensure the implementation of the PST is robust, efficient, and cognisant of its interactions and implications to other reform projects (as well as ETIUs policy intent of the PST and the other reform projects).