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Australian Energy Market Commission
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Submitted online.

17 November 2022

ERC0290 – Operational Security Mechanism

The Australian Energy Council ('AEC') welcomes the opportunity to make a submission to the Australian Energy Market Commission's ('AEMC') *Operational Security Mechanism ('OSM') Draft Determination*.

The Australian Energy Council is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

The AEC welcomes two fundamental features of the OSM:

- A mechanism to assist AEMO in efficiently and predictably scheduling existing contracted ESS' such as system strength contracts;
- As mechanism to voluntarily procure ESS whilst awaiting the development of a spot market in the service, and without having to exercise the problematic power of direction.

However, in acknowledging its beneficial objectives, the AEC raises many cautions about OSM and submits suggested ways to engage with them below.

[1 Unbundled ESS and a Roadmap to get there](#)

For many years the AEC has been advocating for market recognition of the Essential System Services ('ESS') necessary to support the power grid that were historically supplied in abundance, and without payment, from conventional synchronous plant. Indeed [the AEC noted this](#) as the most pressing matter confronting the Energy Security Board ('ESB') Post 2025 project.

The AEC strongly concurs with the ESB's preferences that the power system's need for ESS' should be explicitly determined and commoditized into unbundled products purchased from competitive providers. Unbundled specified ESS markets is clearly the approach which is most transparent, competitive, efficient and supportive of investment. Consistent with that recommendation [the AEC has proposed by rule change](#) a preliminary design for an inertia spot market. Introducing such unbundled markets as soon as possible should be the long-term goal of all institutions.

Whilst an OSM could be useful in the transition to unbundled markets, the AEC also has a strategic concern of a resulting moral hazard: that having an OSM in place will distract from and reduce the motivation to develop those unbundled markets. The AEC is pleased to note the AEMC has also recognized this and supports the proposed mitigation through reviews by AEMO annually and by AEMC quadrennially. The AEC suggests the AEMC reviews should be increased to biennial and obliged within the rule themselves with an explicit objective of transitioning to ESS markets.

The AEC would like to see as part of that review, a process that lays out a long-term pathway towards unbundled ESS markets, routinely updated, that keeps the institutions on track toward these.

As stated in the AEC's Post2025 submissions, the AEC sees a critical role for the Reliability Panel in specifying minimum power system security standards. These standards then set the parameters of the quantities of ESS that AEMO should purchase, either via the OSM or a spot market. The pathway described above should also include targeted deliverables from the Reliability Panel around new or adjusted security standards.

The material anticipates the OSM being supported by detailed AEMO procedures subject to normal Rules Consultation Procedures. Given the complexity of the OSM and the ongoing need to manage its scope, the AEC suggests a different form of ongoing governance. This would be an ongoing expert OSM panel with a roughly similar structure and powers as the AEMC's Reliability Panel or AEMO's Settlement Residue Committee.

Some forum material presented a future evolution of the OSM into an "Integrated ahead market". It is unclear what this is and whether it is consistent with the strategic direction promoted by the ESB.

2 OSM better than direction

As stated in our previous submission, the AEC is very concerned at the recent use of AEMO's power of direction to procure ESS. This use is inconsistent with the extraordinary and oppressive nature of that power. The power was granted for resolutions to unanticipated emergencies, and whilst one-off events are inevitable, repeated directions reflect serious market design failure.

The AEC also notes that the major cause of recent directions, a lack of South Australian system strength, always had an available commercial solution open to it via Network Support Arrangements ('NSA') between the directed generators and the Transmission Network Service Provider ('TNSP'). These were however rejected by the TNSP in favour of repeated directions based on forecast cost alone. This is both economically unsustainable and an abuse of the power. This unfortunate situation results not from a gap in the existing market design but from parties' failure to follow that design.

As part of the pathway towards unbundled markets, and to avoid inappropriate use of the Direction power, the AEC accepts a limited role for an OSM in situations where the institutions have, for technical or practical reasons only, been unable to yet specify an unbundled ESS. The AEC is pleased to note the inclusion of reporting on remaining directions in 3.7G.12(b)(iv)(B).

However, as the AEC has worked through some of the implications of the operation of the OSM, there are significant risks that delivery issues will result in its original intent is not being achieved. This is the challenge of moving away from de-centralized commitment into one with a degree of centralized inter-temporal and integer decision-making.

3 Scope of OSM

There is a significant risk that the OSM could grow to be larger than its intent to procure only those services that have no other market, and by doing so distort those markets. It will be important to restrict the OSM from moving into services that are directly or indirectly procured via the energy, FCAS or another future spot market (e.g. inertia).

Examples of such indirect services include what is sometimes described as "ramping capability" and "operating reserve". In the AEC's mind, these are already indirectly valued within the five-minute single pass energy price.

The AEMC appears to broadly share this view with the inclusion of 3.7G.3(f) indicating AEMO may not enable a security services for the sole purpose of a reliable operating state. However, this sub-clause

appears too narrow to restrict the OSM from operating outside its intended function. The AEC suggests sub-clause be strengthened to disallow AEMO from using it to procure any services that would otherwise be dispatched in the energy market or any ancillary services market.

AEMO's annual reporting reporting obligations on OSM performance should include an explicit requirement to describe the actual types of services included in the assessment criteria and the creation of all approved bundled unit configurations.

It is also unclear how the OSM's objective function of lowest total system cost can be inhibited from becoming a central committer of plant for energy or FCAS purposes alone. Were to happen, the AEC would consider it a distortion of those markets. If so, the self-commitment process that operates so successfully in the NEM and provides excellent incentives for flexibility and readiness, will be undermined, and participants will in time rely more and more on the OSM to perform their forecasting and commitment activities.

In response to these concerns, in its presentations to the AEC, the AEMC stated that this issue is understood and the processes employed to inhibit it are explained in the Draft Determination. Unfortunately the AEC has been unable to locate these explanations in the material. Thus the AEMC is encouraged, particularly through the demonstration exercises we have proposed below, to explore and explain how it is inhibited in its final determination.

4 Demonstration of concept

The draft determination has engaged with the OSM entirely conceptually and from this has proposed high-level rules, leaving it to AEMO to develop the procedures and tools to operationalize the OSM. During the consultation period, AEMO kindly presented to the AEC some potential operationalisations which were very helpful in assisting members' understanding.

Whilst recognizing that specifics of the design are not matters for the rules, the AEC nevertheless considers it is AEMC's responsibility as part of good regulatory practice to explore the design much more thoroughly than has been presented in the draft determination. The AEC suggests that before passing the task to AEMO, the AEMC should at least develop a prototype model that demonstrates how the OSM would actually commit services and backcast this model with real historical events. For example it could demonstrate how it would have committed units into past system strength directions.

This would both assist stakeholders in engaging with the OSM conceptually as well as providing some quantitative basis to the cost/benefit case for the rule.

The AEC notes two recent examples where, during a rule change, the AEMC has performed very detailed analysis and/or specification at the time of the rule change, whilst leaving it open for AEMO to confirm the design through its procedures:

- The Wholesale Demand Response Mechanism: Appendices E, F and G of that [final determination](#) comprehensively specified its design with respect to obligations, baselines and settlement flows respectively. The sort of detail presented in Box 10 of that report is a level AEMC should strive to achieve before it transfers an implementation task to AEMO.
- The [Primary Frequency Response Incentive arrangements](#) final determination engaged a consultant to develop a [fully-specified prototype model](#) which was run over a six-month backcast that calculated the revenues that would have emerged had the arrangements been in place during the period under review.

This is the level of demonstration and specification that the AEMC should also be striving towards in the OSM rule change. In both cases AEMO's implementation is faithfully following the design proposed by the AEMC's work, despite it not being fully explicitly specified in the Rule.

Pay as bid

AEMC and AEMO staff have kindly provided several detailed discussions on the OSM and its likely operationalization to the AEC's members. In working through the details, numerous potential circumstances for unintended consequences arise, some of which we detail.

To draw a theme from these circumstances of unintentional outcomes, they primarily arise from the "pay as bid" settlement approach proposed for the OSM. This is not surprising as basic game theory shows "pay as bid" approaches are unstable, and unintuitively result in higher costs to consumers. This is because in a repeated game, all bidders will attempt to guess the marginal price, which, because guessing is imperfect, results in periods of inefficient dispatch before the market eventually converges to a common-clearing price.

The issue of marginal pricing goes beyond settlement of units committed by the OSM. The OSM proposed does not compensate providers who happen to be already participating in the energy or FCAS markets – this seems to be the intent. Or thought of another way, these providers are considered by the OSM to be bidding \$zero to commit and are then dispatched and paid at that bid. However, this is unstable for similar reasons as described above. In this case it would create an incentive to de-commit from these times in order to be recommitted to receive the true marginal value of that service (which includes the cost of committing the marginal unit).

This situation of providers having an incentive to decommit from the energy market in order to receive OSM income was recognized by the AEMC in its forums as a potential problem. However, the AEC thinks somewhat differently. All providers are delivering the system security service. Why should one provider be paid for an OSM product and the other miss out purely because of an accident of historical self-commitment? This unfairness may be resolved through common-clearing price approaches. If the OSM has committed one asset for a system security service then its bid should become an OSM clearing price. The OSM should then make the same payment to all providers of that service on a pro-rata basis, regardless of their prior commitment status. This is fundamentally the correct economic outcome and elegantly avoids the inefficient requirement to de and re-commit to receive fair payment for a delivered service.

The AEC recognizes that the "pay as bid" design is a core part of the way the OSM has been approached by the AEMC to date. However, we encourage the AEMC to reconsider which settlement elements can practically be made common-clearing in order to remove these issues.

6 OSM providers should be able to earn energy price above enablement price

The settlement design anticipates that a provider who must provide energy alongside the OSM service would receive a make-whole payment for that volume by deducting energy revenue (including negative revenue during negative energy prices) and paying the OSM settlement revenue.

In most circumstances the OSM bid would be expected to exceed the realized energy prices and the AEC considers the design to be appropriate for those circumstances. However during some settlement intervals the energy price would exceed the OSM bid, and the design sees the OSM provider's settlement being deducted during these intervals, in effect punishing an asset for being an OSM provider. This may initially appear "fair", as the provider has presumably indicated that its enablement bid is sufficient to cover its commitment costs, but when thought about more deeply, difficulties arise that will ultimately raise costs to consumers.

OSM providers will have a contract or retail position to defend with their asset. To defend those positions, asset owners need to be able to quickly generate energy spot market revenue if and when spot market prices become high.

Yet having been committed by the OSM, a typical provider will lose access to much of the energy revenue that their asset can generate. Thus, an OSM provider is forced to choose between the OSM and energy market for those OSM time blocks in which it is locked in. This introduces a risk for the OSM provider that will need to be priced into OSM bids, raising prices for customers, which the AEMC acknowledges in section 7.2.6 “In accounting for costs, OSM participants would be able to build opportunity costs into their OSM bids – for example, the risk of forgone energy or FCAS revenue”.

This will add considerably to the OSM bids. Indeed, some providers will be unable to participate in the OSM at all as to do so would breach their own risk-management policies with respect to retaining their ability to defend their contract and retail portfolio.

Allocating such financial risks upstream is appropriate where suppliers are best placed to manage the risk and where the allocation creates beneficial incentives. However, the AEC cannot identify any benefits in this case nor has the draft determination provided an economic rationale for the upstream allocation. Instead, because the risk is unmanageable for providers, the premium added to the OSM bid will be the expected spot market losses over time, plus an uncertainty premium. That uncertainty premium is a deadweight loss that will be ultimately charged to consumers. This premium would not exist if the risk were not placed upstream.

Fortunately, this deadweight loss can be removed with a very straightforward fix to the settlement algebra. The “make whole” payment should bring energy market revenue up to the OSM bid price for those settlement intervals with energy price below OSM bid price, but not further adjust energy settlement to the extent the energy price exceeds the OSM bid.

7 Market Power

The draft determination has dedicated an excessive focus to questions of managing market power. Yet the OSM introduces a form of competitive purchasing for services where there presently is none. It seems reasonable to assume that in doing so, the level of market competition will be the same or improved from the status quo.

Furthermore, much of the OSM’s work will be to dispatch existing ESS contracts, where the terms have been negotiated through a previous competitive process. There is no question of OSM market power in these cases.

Priority should instead be placed on developing the best OSM design for the task, and only after this is complete, with the final design determined, should market power controls be contemplated. Even then, it may be appropriate to initially operate the reform without controls to observe if the concerns are real.

The NEM has successfully operated with very limited market power controls in comparison to most electricity markets. This is fortunate as such controls are extremely fraught. They create regulatory burden, perpetuate market concentration by distorting investment signals, and can never satisfy those who agitate for them. Thus, the AEMC should be very mindful of these matters when determining whether any regime is truly justified.

Of concern in the regime proposed is that the concept of an “efficient price” is indeterminate. The rules should not leave the Australian Energy Regulatory (AER) with the task of regulating towards such a concept without clarifying what it means in the context of a competitive market that seeks to encourage new entry.

Economists could reasonably argue that an “efficient price” sits anywhere between Short-Run-Marginal-Cost at the low end, and, at the high-end, the customer value of a secure power system. The rules as proposed seem to delegate this fundamental question to the economic beliefs that the AER may carry from time to time. This introduces uncertainty for all.

Furthermore, the absence of clear rules guidance seems to invite legal challenge to the AER’s interpretation. In such cases where the purpose of a market power control is unclear, courts tend to find against the regulator.

If the AEMC insists on retaining a market power control based around an “efficient price”, then the AEMC needs to write into the rules a clear definition of it. The AEC suggests an appropriate definition would be the higher of the long-term costs of the marginal existing provider and the long-term costs of new-entrant providers.

8 Forecast Information

A challenge of the OSM, in comparison to ESS spot markets, is that performance and turnover of the new mechanism is inevitably less transparent with respect to potential new entrants. This is because it does not in its design specify a simplified commodity nor can it ascribe to that what is most important for entrants: a single commodity price.

Entrants could be assisted by providing stylised volumetric forecasts of requirements, especially noting the forecast exits of existing providers. The AEC understands the intention is that long-term forecasting information is provided through AEMO’s Engineering Framework and Power System Risk Reviews. That Framework is useful but is not presented in a form that can be readily interpreted for the purpose of predicting investor value.

AEC suggests the Electricity Statement of Opportunities (ESOO) would be a good vehicle for such information. This would both incorporate simplified information about the sort of service needed by the power system in the planning horizon and could identify the types of technologies that could deliver it.

9 Delivery Confidence

A mechanism that relies on advance bidding information introduces challenges with respect to confidence in the offers that are presented some hours ahead of the time at which they will be delivered. With respect to behavioural matters, the AEC supports aligning OSM bidding rules with energy bidding rules, with which they are inextricably linked.

There are of course many reasons why the promised performance of complex electrical equipment cannot perfectly match the delivery. For example, a recalled large thermal unit has a wide period of uncertainty as to when it will achieve synchronisation, and entirely failed starts are common. And fuel supply or network access may become unexpectedly unavailable.

The draft determination is unclear about the settlement implications of such natural uncertainties. Ideally settlement should recognize performance delivery, to:

- create an incentive to perform
- create a dis-incentive to not over-promise, and

- to treat fairly competing providers with respect to their reliability.

Whilst the specifics of such settlement adjustments can be left to AEMO procedures, the Rules should at least clarify what those procedures should aim to achieve with respect to recognizing delivery against promised performance.

10 Dispatch Flexibility

Whilst the AEC supports the structure of methodically optimizing OSM bids in a consistent scheduling process, there may be situations that arise at short notice where there is insufficient time to operate this. In this case it would be preferable to manually call upon an open OSM bid rather than having to rely on direction.

The rules should permit AEMO to dispatch OSM bids if it is necessary to maintain system security and there is no opportunity to operate the computerized optimizer.

11 Market Floor Price Bidding

The draft determination does not engage with the difficulties presented to the OSM optimization process caused by Market Floor Price (MFP) generator and storage bids that occur when subject to network constraints. These are of course not indicative of the true SRMCs of these generators but are an unavoidable consequence of the regional settlement design. In doing so they artificially increase the apparent marginal cost of a network constraint as observed by the dispatch process by about \$1,000/MWh above its true economic cost. The majority of the NEM's network constraints experience this issue.

This distortion poses a material difficulty for the OSM optimization. This is because the main way that it will discover to improve its objective function (reduce cost of dispatch) will be by scheduling additional ESS' to expand the Right Hand Side (RHS) of these constraints. The OSM optimization will consider that every MW of increase in the RHS of binding network constraints will provide at least \$1,000/MWh of value. Yet more likely the true economic value is only a few dollars, most often the result of one renewable generator being constrained from competing with another.

The exaggerated benefit observed by the OSM optimizer would then lead to it scheduling expensive ESS' for trivial benefit. For example, it might recall a distillate-fuelled gas turbine at great expense to provide system strength to expand network capacity just so that one windfarm can displace another.

This issue is not necessarily fatal, as it might be resolvable by placing a kind of "false" floor on the generator bids fed into the optimizer, set at the generators' true SRMC. This is one of the many OSM details that requires exploration and exposure before the rules are locked in. It is not clear if the solution is best managed in the Rules or in AEMO's procedures, but if the latter, there should at least be clarity in the final determination on AEMO's power to impose a solution.

11 Conclusion

The AEC cautiously supports the introduction of a form of OSM for the purposes of scheduling contracted ESS', or for temporary situations where neither an ESS market nor contracted ESS exists and a direction would otherwise result.

The AEC's principle caution relates to a concern that in the presence of OSM, it may detract from the development of ESS markets because the OSM is seen as expedient from the perspective of the institutions. This would be inefficient and detract from the important new-entrant incentives necessary to provide security during the industry's transition.

The AEC supports the reporting framework in order to keep the NEM on a pathway to ESS markets, but feels they could be strengthened in a number of ways. This framework is also useful to observe whether the OSM unintentionally distorts existing energy and ancillary services markets.

The AEMC has only engaged with the OSM in the draft determination in a theoretical sense. Good regulatory practice requires the AEMC taking the analysis further before the final determination, ideally through a quantitative prototype that can be used to re-run actual historical events.

“Pay-as-bid” approaches can lead to many potentially unintended and inefficient outcomes, some of which the AEMC has already identified as concerns. The AEMC is encouraged to reconsider whether a form of common-clearing price arrangement can be applied.

There is no obvious reason to withhold energy revenue above an OSM bid price, and in doing so, the design unnecessarily creates a barrier to participation and raises costs to consumers.

Any questions about this submission should be addressed to Ben Skinner, by email Ben.Skinner@energycouncil.com.au or 03 9605 3116.

Yours sincerely,



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