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Stuart Morrison
Australian Energy Market Commission
Submitted online to: www.aemc.gov.au

Dear Stuart

Submission: Directions Paper on Capacity Commitment Mechanism and Synchronous Services Markets

CS Energy welcomes the opportunity to provide a submission to the Australian Energy Market Commission's (**AEMC's**) *Directions Paper – Capacity Commitment Mechanism and Synchronous Services Markets* (**Directions Paper**). CS Energy is strongly supportive of the creation of mechanisms that appropriately procure services that are critical to the effective and efficient delivery of secure and reliable energy into the future.

About CS Energy

CS Energy is a Queensland energy company that generates and sells electricity in the National Electricity Market (**NEM**). CS Energy owns and operates the Kogan Creek and Callide B coal-fired power stations and has a 50% share in the Callide C station (which it also operates). CS Energy sells electricity into the NEM from these power stations, as well as electricity generated by other power stations that CS Energy holds the trading rights to.

CS Energy also operates a retail business, offering retail contracts to large commercial and industrial users in Queensland, and is part of the South-East Queensland retail market through our joint venture with Alinta Energy.

CS Energy is 100 percent owned by the Queensland government.

Key recommendations

The NEM is inarguably changing and will continue to do so as it transitions to a market with more variable renewable energy (**VRE**) and an overall lower carbon footprint. The ability to effectively and efficiently manage power system security and reliability against this evolving landscape is paramount, and CS Energy supports the need to develop market and regulatory frameworks that incentivise the provision of essential system services that are flexible and adaptive.

The experience in South Australia has highlighted that both the Australian Energy Market Operator (**AEMO**) and the market need more forward certainty and visibility of essential system service value and provision. The rule change requests from Delta and Hydro

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Tasmania stemmed from the accepted need to urgently address missing markets for these services so it is concerning that the Directions Paper has focused more so on operational requirements rather than market requirements. In developing any mechanism, the AEMC would ideally balance the tension between engineering requirements and market economics. Beyond a secure dispatch, it is unclear what the options proposed in the Directions Paper are trying to achieve.

The Directions Paper presents a conflict between an operational urgency for a solution that will deliver prescribed outcomes in the short-term and a longer-term need for clear price signals that value system services for the delivery of capability in both operational and investment timeframes. In CS Energy's view this conflict cannot be readily resolved by a single mechanism that seeks to deliver this short-term outcome yet provide the long-term implementation architecture for technical requirements that haven't yet been defined. This will not represent an efficient pathway forwards.

Furthermore, it is CS Energy's view that the necessary work has not been conducted to demonstrate the need for either the Market Ancillary Service (**MAS**) or Non-market Ancillary Service (**NMAS**) proposals or whether they represent an efficient approach. Neither mechanism exhibits an appropriate level of transparency to the market or clear price signals. CS Energy is particularly opposed to the NMAS as it has the potential to materially distort the market, is not transparent and represents a shift towards centralised decision-making.

The development of any mechanism to procure services in an operational timeframe without a clear procurement metric or standard can lead to inefficiency and risk. As previously advocated by CS Energy, the AEMC should first provide clarity through the National Electricity Rules (**Rules**) on the definitions of *power system security standards* and system adequacy before any system security mechanism is developed.

CS Energy recommends the AEMC postpone further consideration of the MAS and NMAS and focus on:

- Ensuring that the Rules provide clear specifications and definitions related to system security to facilitate the operational procurement of system services that will satisfy the technical envelope;

- Developing a transitionary mechanism that provides AEMO with the operational confidence it requires in the short-term. This would entail identifying a clear metric for procurement that is transparent, replicable and governable while also ensuring that services are not procured to exceed the technical envelope. Existing frameworks should be utilised as much as possible including exploring the potential to develop a more efficient process to ensure various unit combinations are online if that is the identified need.

  Any transitionary mechanism needs to be structured such that both AEMO and the market can acquire learnings about what system services and at what volumes and frequency are required for secure dispatch. This will help form the basis for future supply-demand curves and will help the market understand the capability required.

  The transitionary mechanism should have a clear sunset clause and pathway to inform the development of a services-based mechanism. This may include clear timeframes for processes to understand the requirements but should also facilitate processes for AEMO to gain confidence in the ability of the market to deliver these services when required.

Any mechanism through which AEMO centrally procures system services in the operational timeframe should place the same 'good faith' obligations on AEMO as it does on market participants;

- Ensuring that the broader regulatory frameworks facilitate service-based mechanisms for essential system services. Currently, the operational processes that are designed to inform the market do not provide explicit information on system services. Markets rely on timely and accurate information in order to manage forward positions and deliver secure and reliable energy; and

- Developing a long-term solution that:

    - Is based on requirements that are well defined;

    - Preserves the role of dispatch as the coordinated function of market inputs from decentralised decision-making;

    - Co-optimises system service procurement with the energy market; and

    - Provides appropriate price and investment signals to the market.

  In doing so, it should be acknowledged by the AEMC that potential solutions may present as initially complex. The NEM is becoming more complex and the incremental overlay of mechanisms on existing processes will likely result in inefficient outcomes.

Further detail on CS Energy's response to the Directions Paper is set out in Appendix A.

If you would like to discuss this submission, please contact either myself on 0407 548 627 or ademaria@csenergy.com.au or Henry Gorniak (Market and Power System Specialist) on 0418 380 432 or hgorniak@csenergy.com.au.

Yours sincerely

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APPENDIX A

Introduction and context

As the NEM transforms, the changing generation mix will necessitate a change in how the power system and the market interact and operate. The power system will comprise of a sizable number of participating technologies at both the transmission and distribution levels with this changing mix reflected in the increasing value of essential system services. This operational dynamic will require changes in market design and its associated frameworks so that the market is informed of the system needs and can make operational and investment decisions that ensure a safe, secure and reliable energy supply.

The level of directions in South Australia not only supports the need for market frameworks to evolve, but also highlights the consequences of reactivity to the changing system. The need to address missing markets for essential system services has been emphatically acknowledged and was the motivation for the rule change requests by Delta and Hydro Tasmania. Although the FTI consultancy cited in the Directions Paper reiterated earlier discussions from AEMO on the types of procurement mechanisms available and the need to first understand the problem to then ascertain the efficient solution[1], it is concerning that the Energy Security Board (**ESB**) did not focus on the critical strategic overlay to system security. Rather the ESB focussed primarily on scheduling mechanisms, specifically AEMO's proposed Unit Commitment for Security (**UCS**) and System Security Mechanism (**SSM**).

CS Energy agrees that the power system has and is becoming more operationally complex but does not agree that adequate work has been done to demonstrate the need for either of the mechanisms proposed in the Directions Paper, nor has there been a clear justification of why some services cannot be valued independently. Rather than exploring missing markets as per the intent of the rule change requests, the Directions Paper has prematurely leapt to consideration of two implementation mechanisms based on the UCS and SSM.

In doing so, CS Energy is concerned that the challenge of missing markets has been overlooked, with the proposed mechanisms defined purely from an operational lens. Throughout the ESB's NEM Post 2025 program of work, the characterisation of the problem being addressed by these mechanisms has been unclear and inconsistent. The problems purported included an alleged market failure with respect to system services, a unit commitment problem, the need to schedule numerous system strength contracts and the need to have certain combinations of units online at given times. The need to inform the market and provide clear investment signals was not explicitly considered. In particular:

- These options were effectively presented as a *fait accompli* from the onset, with no justification of the need beyond a high-level statement for system security;

- The (undemonstrated to date) need for these mechanisms originated from consideration of a fully centralised, day-ahead market. As standalone mechanisms within the NEM, they have not been justified; and

[1] See for example AEMO, *Future Power System Security Program – Progress Report*, August 2016

- Work to date has focused exclusively on the design of these mechanisms. No work has been conducted to demonstrate the need and expected benefits of these mechanisms or explore alternative approaches.

Even the Directions Paper presents as confused about what problem is being addressed and the actual intent of the mechanisms. While CS Energy appreciates that the AEMC has a statutory duty to advance the rule change requests, imposing a mechanism that has no clear justification or measurability provides a disservice to consumers.

A lot more work needs to be done before either the MAS or the NMAS can be presented as plausible options. Efficient market and regulatory frameworks are best developed via a holistic approach that diligently examines both the underlying operational needs as well as the economic outcomes and trade-offs of potential mechanisms. This must seek to understand emerging operational challenges related to system security, the efficacy of current frameworks and potential adaptations to these, as well as mapping out the work required to be undertaken to inform any potential solutions. Importantly, there must be a balance between the engineering and market perspectives.

CS Energy implores the AEMC to undertake this necessary work before progressing the proposed mechanisms. If not, it is likely that an inefficient and ineffectual mechanism will be imposed on the market at a significant impost to consumers.

Reframing the approach

CS Energy agrees there is a need for an efficient path forward to ensure the security of the NEM as it transitions. The broad acceptance of missing markets was the tenet of both rule change requests and the AEMC should not deviate from this objective. It is also important not to conflate missing markets for system security services as a scheduling problem. CS Energy is very supportive of AEMO attaining the required visibility and certainty of resources in order to perform its role however, the success of any mechanism relies on:

- Clear articulation of the need/problem;

- The development of a metric or standard to which the mechanism is aligned. This ensures that the implementation of the mechanisms is standardised, replicable, efficient and governable; and

- Development of a suite of potential mechanisms including adapting existing frameworks which can provide timely and transparent signals on the operational need to the market.

Problem characterisation

In defining the challenge, it is important to separate the symptoms from the cause. For example, the increased use of directions is not a cause but a consequence of the problem. Equally important is the need to overlay the various perspectives to formulate an unbiased problem statement. For example, the operator's belief that the interventions in South Australia represented a failure of the market to coordinate itself is challenged by the market which can only coordinate to deliver a service if there is a signal for the service. As outlined in the Directions Paper, the universal problem statement is that there is a lack of information and incentivisation for system services which means that these services are not delivered when needed operationally. This is the missing market conundrum:

- Except for Frequency Control Ancillary Services (**FCAS**), the market receives no explicit information about the need for system services and how this need changes over time;

- System services are not explicitly valued via market mechanisms;

- Increasingly, existing providers of system services are actively disincentivised to provide these services as often wholesale prices are negative at the times of system service scarcity; and

- There are no investment signals to incentivise new entrants to have the capability that the system will need.

The Directions Paper articulates these elements, yet the ensuing discussion is clouded by operational outcomes such as scheduling system strength contracts and specific system configurations.

Establishing a metric/operational standard

Any mechanism in the operational timeframe must have a clear operational standard to which it adheres. In this context, regardless of the mechanism, any procurement by AEMO in the operational timeframe must have a clearly defined metric whether it's the procurement of a system strength shortfall, certain unit combinations or system services in general. This is crucial as it not only provides valuable information to the market, but it provides an objective means for AEMO to make operational decisions. This ability is crucial in an increasingly complex operational environment. As with the existing standards, the trade-off between operational certainty and cost is already explicitly considered in the development of the standard.

A standardised approach provides both the market and AEMO with certainty and allows both to gain better understanding of the changing system. How the standard is met, the level of operational headroom and other factors will start to form a supply-demand curve for system services from which an explicit value can be derived.

A standard would also provide accountability in the procurement and delivery of services. AEMO would be empowered to procure any shortfall above existing mechanisms (such as system strength planning standard) and if a service provider's performance was below the contracted level, the cost of this would be readily understandable based on the cost of services procured to meet the resultant shortfall.

A standard or standardised metric is also critical for ascribing market participants with a level of exposure that needs to be managed. This reinforces the incentive to provide the relevant service and minimise risk.

The NEM relies on consistency in its operations and processes. The evolving need to value and procure system services is no different. If anything, it is of greater importance as both AEMO and the market are learning what capability participants need to deliver and when to ensure secure and reliable supply.

CS Energy notes that while the Rules provide reference to *power system security standards* which are considered in the operational processes of Chapter 4, the required clarity is not there. The definition provided is:[2]

[2] National Electricity Rules, Version 173, Chapter 10 – glossary, p.1343

> "The standards (other than the *reliability standard* and the *system restart standard*) governing *power system security* and *reliability* of the *power system* to be approved by the *Reliability Panel* on the advice of *AEMO*, but which may include but are not limited to standards for the *frequency* of the *power system* in operation and *contingency capacity reserves* (including guidelines for assessing requirements)."

CS Energy has not been able to garner what the *power system security standards* entail to a more granular level, and the Reliability Panel's guidelines direct the reader to Chapter 5.1A of the Rules which relates to network connections. In its submission to the *Updating ST Projected Assessment of System Adequacy* (***PASA***) rule change consultation, CS Energy also raised concerns that the Rules do not define system adequacy.[3]

If system security is the critical issue, (with which CS Energy strongly agrees) then the AEMC needs to prioritise the development of clear standards and definitions prior to the development of any mechanism.

Solution space

Prior to developing any potential options, it is imperative that the AEMC explicitly determine the overarching objective of the desired option. The Directions Paper provides conflicting objectives and it is unclear to the reader what exact outcome is sought. For example:

- Is the mechanism intended to be transitionary or enduring?
- What is the intended role of the market in delivering system services?
- What is an appropriate level of operational confidence and how does that relate to the technical envelope?

(a) Transitionary or enduring

A fundamental component of addressing missing markets is to establish long-term investment signals, the certainty of which is provided by an enduring mechanism. This is encapsulated in the AEMC's system services objective. However, the Directions Paper states that mechanisms are needed now to solve the immediate problem and focuses on elements that are seemingly contrary to the system services objective.[4]

The discussion in Section 5.1.6 of the Directions Paper acknowledges that "*AEMO currently has tools available to allow it to ensure that the power system remains in a secure system configuration*"[5] albeit inefficiently. If the intent of the proposed mechanisms is for their utilisation in the short-term to procure specific combinations of units that provide a combination of services that cannot be unbundled, then this needs to be explicit and the mechanisms interrogated to ensure they represent the best transitionary approach.

It also needs to be made clear that the proposal is a transitionary solution and not lock in an implementation framework before the longer-term problem has been adequately defined. The Directions Paper is very clear that much more work needs to be done to understand the requirements for service procurement and accordingly, it naturally follows that the AEMC must wait until this work is done before it puts into place long-term implementation frameworks that otherwise risk adverse outcomes. The most efficient and effective means

[3] CS Energy, *Submission to AEMC Updating ST PASA Consultation Paper*, August 2021
[4] AEMC, *Directions Paper – Capacity Commitment Mechanisms and Synchronous Services Markets*, p.11
[5] *Ibid*, p.46

of procurement mechanism depends intimately on the nature of the need which has not yet been adequately specified.

In CS Energy's view, the outcome that the proposed options are intended to deliver should be clarified, which will reveal whether to focus on a transitionary or enduring approach rather than attempt a one-size-fits-all approach. If the intent is to manage the power system in the short-term via certain combinations of units, then a transitionary solution is appropriate.

Similarly, if the intent is for AEMO to establish an operational buffer until more work is done to understand the power system, then this should be made explicit, and a clear metric to reflect the level of operational confidence developed. As actions by AEMO affect market participants, there needs to be transparency and consistency in this approach.

If the operational outcomes outlined above are the focus, then CS Energy is not convinced that either the MAS or NMAS represent the most efficient approach. CS Energy encourages the AEMC to:

- Explore how existing frameworks could be utilised or adapted to meet the short-term operational needs. For example, AEMO could contract with the units that deliver the specific combinations or establish a framework to request these units for system security in a way that is more efficient and more appropriate than the existing directions framework. The Hydro Tasmania rule change may also be an appropriate short-term solution;

- Establish a work program that focuses on understanding the requirements with the clear objective to develop services-based mechanisms. This needs to take precedence with a clear roadmap and key steps published; and

- Once the need is better understood, develop a services-based market mechanism.

It is fundamental that any transitionary mechanism has a clear sunset clause to provide the impetus for the development of a market solution.

(b) Role of the market

Despite the discussion on the need to incentivise the provision of system services and create long-term investment signals, the focus of the Directions Paper and proposed options has an operational lens.

Risk allocation is best placed with the market. A changing generation mix doesn't imply challenges automatically if the right market signals are developed. Decision-making in the long-term must remain with participants and not be centralised. Participants are best placed to manage their resources and already do so ahead of real-time. This will continue and develop further as market signals evolve to reflect the changing system with the right signals.

System security has been stated as the highest priority for the NEM yet there is very limited explicit market information available to participants in relation to projected system security shortfalls. The role of processes such as pre-dispatch and the PASAs are foremost to inform the market, however these processes do not provide information about system services. The recent Updating Short-Term PASA rule change request by AEMO represented an opportunity to address the information asymmetry but instead focused purely on reliability.

If information on system services isn't communicated to the market in the first instance, then the market cannot begin to respond and evolve. Regardless of the transitionary nature of a mechanism, there must be transparency in system service needs. In this way, both AEMO and the market can build up confidence, and measures should be put in place to allow the market to demonstrate its ability to provide these services.

Exploring options

It is difficult to properly assess the spectrum of options due to the lack of clarity on what problem is being addressed. CS Energy suggests that the AEMC, once clarifying and specifying the objective, explore a range of options to ensure the most efficient outcome. Some possible considerations are outlined below.

(a) Lack of incentives

In discussing the lack of incentives for the provision of system services, the Directions Paper also highlights the growing challenge of negative wholesale prices causing system service providers to be offline and thus creating scarcity of system services.

The approach commonly discussed to incentivise system services is by explicitly valuing them. CS Energy agrees that this is the efficient long-term approach but suggests the AEMC consider whether aligning the energy price at times of low demand to system security needs may be a viable short-term solution. As touched upon in its submission to the AEMC's *Review of the Reliability Standard and Settings Guidelines*, aligning the market floor price with system security needs may be a means to incentivise the short-term provision of system services when needed.[6] It is unlikely to be a long-term solution as the price signals for system services would not be sufficiently explicit to drive investment in the desired capability.

(b) Scheduling system strength contracts

The Directions Paper does not establish the need for a mechanism to schedule system strength contracts. While the rule change for developing a system strength planning standard has been finalised, it is unclear how Transmission Network Service Providers (**TNSPs**) will meet their obligations. One option is to contract generators however these network support type arrangements typically require generators to ensure their availability in dispatch when required. Generators would signal their commitment at these times via the market processes, while TNSPs would incorporate this information in their limit advice to AEMO. If TNSPs were required to participate in a further centralised process for activating contracts it will likely steer them away from efficient non-network solutions to meet system strength obligations.

Furthermore, it is unclear how new connections will manage their system strength liability. They may choose to self-remediate potentially through bilateral system strength contracts with other participants. Any centralised scheduling mechanism may present barriers to this approach.

If it was demonstrated that the scheduling of bilateral system strength contracts is a challenge, CS Energy would like the AEMC to explore the viability of extending the AEMO Voltage Dispatch Schedule (**VDS**) to include system strength. In this approach, it would be measurable through an objective function that appropriately captures the technical envelope and can co-optimise network and non-network options.

[6] CS Energy, *Submission to Review of the Reliability Standard and Settings Guidelines*, April 2021

The VDS has been operational since February 2016 as a means of dispatching reactive power to maintain power system security. AEMO and Reactive Plant Operators (**RPOs**) (including TNSPs) participated in an initial six-month trial period. When it went fully operational in August of that year, AEMO manual dispatch in voltage control had decreased to a point where an acceptable level of automation had been achieved.[7] The tool also manages peak and low demand periods during load run-ups and outages. RPOs have performance requirements as set by AEMO including the ability to change the availability status of the plant and communicate that to AEMO.

Voltage control, like system strength, is a localised service, and CS Energy would like to explore whether the same approach to dispatching reactive power support contracts can be applied to system strength contracts. The principles are already established in that the technical envelope looks at all points within a region to determine the need. Including system strength would not add complexity just volume and could arguably be viewed as a natural extension of the current process.

The VDS includes system configuration scenarios for electrical islanding coupled with FCAS and inertia requirements. The TNSPs provide details on availability, enablement and usage of contracted resources in limit advice to AEMO which converts that limit advice into constraints for utilisation in NEMDE. The same could be applied for system strength based on *N-1* to address AEMO's concerns.

(c) Bundled Services

AEMO has indicated that at present it cannot unbundle a number of system services. In CS Energy's view, AEMO should be able to utilise a metric to determine that the power system is secure without unbundling the services. If not, then this approach cannot represent an efficient outcome. Transparency of this metric and these bundled services should be provided to the market, even if at a 'checklist' level. The market and consumers are entitled to understand what they are paying for.

CS Energy would also like to understand whether proxies could be set for these characteristics. For example, system strength is difficult to define but a proxy is sufficient for it to be set as a standard. This can be utilised in the first instance to inform the market of the need and value.

CS Energy also questions why inertia cannot be explicitly valued and seeks further clarity. Inertia is explicit in constraint formulation as is the trade-off between inertia and dispatch of inverter-based resources.

(d) System configurations and contracts

As touched on above, if mechanisms are to be used to ensure certain unit combinations are online at least in the short-term, then contracting these units is a plausible option. These unit combinations are presented as limit advice for conversion into constraints so do not require a new mechanism. Contracting will enable providers to be paid adequately for service delivery as it would sit outside the compensation frameworks. While not necessarily the most efficient long-term approach, it is likely to be more efficient than designing a 'fit-for-propose' framework now for requirements that are not yet understood.

[7] AEMO, Notice - *NEM Var Dispatch Schedule System: Operational go-live*, August 2016

(e) Convergence of the NEM Dispatch Engine (**NEMDE**)

The Directions Paper references the potential inability of NEMDE to converge depending on the system services mechanism. CS Energy seeks further information as to why the application of Constraint Violation Penalty (**CVP**)[8] as the current practice would not work as the Rules require a solution for each trading interval albeit at a cost. The price assigned to the CVP could reflect the relative value of a particular system service as it would be based on the marginal cost of system security when those constraints violate.

The CVP prices which are multipliers of the Market Price Cap (**MPC**) assigned to each type of constraint provide a pre-defined priority order based on the relative prices ensuring that NEMDE arrives at a physically feasible dispatch solution. NEMDE should converge, just at a cost and understanding this cost relative to the cost of the MAS and NMAS is important.

(f) Integrating binary characteristics

As NEMDE utilises a linear program solver the Directions Paper discusses the difficulties in optimising for binary characteristics such as inertia. If the power system is becoming operationally complex, then the associated processes and tools should evolve accordingly to manage the complexity. Making incremental changes for simplicity is unlikely to result in a long-term efficient approach.

The binary nature of some system services is often viewed as a negative because of the stepped supply. The balance of these system services however is unlike energy in that the exact physical match of supply and demand instantaneously is not required. Any surplus simply constitutes system reserves.

The architecture for valuing, scheduling and procuring system services in operational timeframes needs to be developed *after* the requirements are understood and should form part of the AEMC and AEMO's forward work program. In the meantime, options for implementing a transitionary approach already exist:

- If AEMO procures unit combinations then these will be reflected in the constraint equations derived from limit advice or system studies;

- NEMDE already has the ability to employ a commitment run prior to dispatch to manage fast start inflexibility units. While a little clunky, it may be able to be utilised in the short-term to determine unit commitment to meet defined inertia needs for example. A process such as the Hydro Tasmania proposal could then be used in the dispatch run;

- The Hydro Tasmania approach has merit to be explored as a potential short-term approach and has the required flexibility to adapt to the system needs; and

- The binary nature of some system services coupled with the existing regulatory frameworks means that AEMO has visibility of the level of service provision capability. While participants may refine the volume and price of their bids in response to pre-dispatch, unit commitment status reflected in ST PASA cannot change without legitimate reasons. Thus, AEMO will have foresight of the capability bidding into dispatch and can assess the likelihood of any potential shortfalls in a manner similar to the *lack of reserve* approach for reliability. That is, the current regulatory frameworks already provide the desired commitment ahead of time.

[8] AEMO, *Schedule of Constraint Violation Penalty Factors*, November 2017

Comments specific to MAS and NMAS

While CS Energy maintains a preference for market-based mechanisms to value system services where appropriate, it does not support either the MAS or NMAS at this stage. More work should be conducted to determine whether either represent the most efficient and effective mechanism. Furthermore, the options as presented do not satisfy either the system services objective or assessment principles outlined in the Directions Paper:

- A lack of a clear problem statement and objective for the mechanisms will not promote efficiencies in the operation of the mechanisms and the signals they provide (or don't provide) to the market;

- This is exacerbated by the lack of clear metrics for the procurement of services which may lead to under or over-procurement in the operational timeframe both of which will ultimately have a cost impost to consumers;

- Any shift to centralised decision-making will drive market inefficiencies;

- The lack of a procurement metric introduces subjectivity in the level of 'operational confidence' required, which will add complexity for AEMO in operating the power system and uncertainty for market participants in managing forward risk;

- There is no clarity on how the mechanisms will operate, in particular:

    - The interaction with other frameworks and potential impacts on the energy market have not been explored. This is of particular concern with the NMAS as system service procurement is not co-optimised with the market and thus will have a distortionary effect;

    - How the level of procurement will impact constraints and be reflected in the technical envelope is not clear;

    - How costs will be allocated is unclear as is how participants can manage their exposure; and

    - The flexibility of the mechanisms to adapt to service-based procurement is unclear as is the impetus for AEMO to transition to this approach.

- The pricing of system services presents as an afterthought rather than a necessity to drive investment in future capability. Services are not appropriately valued nor do the mechanisms provide clear price signals to the market. For example, payment on a cost basis does not present an investment case; and

- There is a lack of transparency in both mechanisms which will impede any market development in both the operational and investment timeframes. The lack of transparency will also likely impact the efficiency of the energy market.

Without further work it is difficult to ascertain whether the risk allocation is appropriate but CS Energy considers the market best placed to manage the risk.

If either of these mechanisms were to proceed, the AEMC would need to establish very clear rules and transparency in how they are utilised together with the required reporting by

AEMO. Presumably the costs of procurement (particularly if exceeding the technical envelope requirements) would be audited by the Australian Energy Regulator.

Neither the MAS or NMAS provide sufficient incentives for the market to make the required capability available – there is no investment signal of what is needed to alleviate dispatch. In CS Energy's view, the mechanisms also provide no imperative for AEMO to shift to a services-based market model. The procurement of bundled services via centralised decision-making with little transparency will not encourage AEMO to develop trust in the market delivery of system services. This is particularly true for the NMAS option.

There will always be a natural bias for any system operator to trend to engineering conservatism. The market then provides the balancing component of what is economically efficient. This cannot be achieved if there is no transparency in the market. The market is better placed to determine what is efficient for the market based on optimising the cost of dispatch. As outlined in the Directions Paper, market participants make intertemporal decisions that optimise short and long-term cost as well as trading portfolios. System services should be no different.

Transparency of information also extends to timeliness and the proposed approach to run NMAS less frequently may distort the market and drive inefficiencies. In power systems that are becoming more variable and dynamic, the requirements can change materially in the lead up to the dispatch period. This has been one of the criticisms of ahead markets in the context of energy transition. While running NMAS less frequently may save AEMO processing time, it dilutes the functionality of the market and its ability to respond. It is also likely that over-procurement of services will occur as it will be based on less accurate information.

In order to give the market confidence with these mechanisms, the same 'bidding in good faith' guidelines should apply to AEMO. That is, if AEMO is centrally procuring system services then it effectively represents a market participant.

Recommendations for next steps

CS Energy suggests that the AEMC does not progress the development of the MAS and NMAS until the problem statement is resolved. At present, there is a conflict between an operational urgency for a solution that will deliver prescribed outcomes and a longer-term need for clear price signals that value system services for the delivery of capability in both operational and investment timeframes.

Given this conflict, the AEMC should not be seeking to '*provide the architecture for valuing, scheduling and procurement of ancillary services in operational timeframes'*. Defining this implementation mechanism prior to understanding exactly what it needs to deliver will result in poor outcomes in the short-term and long-term. It will not cater for what the market and AEMO need now nor will it provide the flexible and robust signals to drive future system service capabilities.

CS Energy recommends that the AEMC:

- Develop a transitionary solution to manage the current operational needs; and
- Develop a clear roadmap to transition to a longer-term service-based model.

In determining the transitionary solution there should be a clear articulation of the objective. For example, procuring certain unit combinations or procuring a level of bundled system services. Importantly, the level of operational confidence that is sought needs to be defined and a clear and accountable metric established.

There needs to be transparency in this objective. For example, what aspect about certain system configurations makes the system secure? Do these reflect the minimum security requirements or secure operation? What are the marginal components? What services are being delivered and thus the gaps in the current frameworks? This will assist industry in understanding the needs of the power system.

As discussed above, CS Energy does not consider the MAS or NMAS as the most efficient approach for this objective.

The Directions Paper also states that improving the regulatory framework for essential system services is a priority. An immediate step the AEMC could undertake is to improve the transparency of information to the market. In particular:

- Perform an audit of the Rules to ensure that the definitions, processes and procedures appropriately reflect the evolving role of system services, including a clear definition of *power system security standards*;

- Ensure frameworks that are intended to inform the market such as ST PASA and the Electricity Statement of Opportunities appropriately capture and report system services; and

- Consider requirements on AEMO to enhance the information provision of pre-dispatch to include system service requirements and demonstrate how the procured services have met the metric.

This transitionary period can represent a process of learning for both AEMO and the market as work progresses towards understanding the requirements that will underpin a services-based mechanism.

The transitionary mechanism would need to have a sunset clause to create the imperative to develop long-term mechanisms and ensure it is transitionary. This may include clear timeframes for processes such as AEMO's Engineering Framework, the development of trials such as extending the VDS to include system strength and other work that is identified.

While the transitionary solution will be more efficient than the current process of directions, it is not the enduring solution. One learning from the directions in South Australia is that both AEMO and the market need more forward certainty and visibility with respect to system services. The AEMC should take the opportunity to lay the groundwork for developing innovative market solutions for system security rather than prematurely implementing a mechanism that has not demonstrated or justified itself.