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Ms Shannon Culic
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Dear Ms Culic

Submission: Operating Reserve Market Directions Paper

CS Energy welcomes the opportunity to provide a submission to the Australian Energy Market Commission's (**AEMC's**) *Directions Paper – Operating Reserve Market (Directions Paper)*.

About CS Energy

CS Energy is a proudly Queensland-owned and based energy company that provides power to some of our state's biggest industries and employers. We employ almost 500 people who live and work in the Queensland communities where we operate. 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 National Electricity Market (**NEM**) from these power stations, as well as electricity generated by Gladstone Power Station for which CS Energy holds the trading rights.

CS Energy also provides retail electricity services to large commercial and industrial customers throughout Queensland and has a retail joint venture with Alinta Energy to support household and small business customers in South-East Queensland.

CS Energy is creating a more diverse portfolio of energy sources as we transition to a new energy future and is committed to supporting regional Queensland through the development of clean energy hubs at our existing power system sites as part of the Queensland Energy and Jobs Plan (**QEJP**).

Key recommendations

The NEM is 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

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regulatory frameworks that incentivise the provision of system services that are flexible, efficient and adaptive.

The consultation to date on operating reserves has considered various models and as such, in CS Energy's opinion, has made it difficult to ascertain what precise objectives were being sought. CS Energy agrees that the power system needs sufficient resources to meet net demand forecasts accounting for uncertainty and variability. With the changing generation mix, a level of uncertainty and variability will become the new norm, and it will not be efficient to run an increasingly probabilistic system without tolerating a level of uncertainty.

In considering the need for reserve services, it is important not to conflate reliability and security events particularly given the indistinct events framework empowers the Australian Energy Market Operator (**AEMO**) to manage large variabilities in VRE as eligible for reclassification as credible contingencies. Furthermore, CS Energy considers the existing combination of Frequency Control Ancillary Services (**FCAS**) and out-of-market reserve frameworks as already capable of, or readily adaptable to, providing the capacity required to return the system to secure operation whether after conventional credible contingencies or new modes of supply disruption.

The changing need for capacity and contingency capacity reserves to better capture ramp rates and energy availability does not in itself justify the need for an operating reserve mechanism and thus CS Energy supports the AEMC's decision to cease further work on the proposed models. In its submission to the AEMC's 2021 consultation on this topic, CS Energy posited merit in exploring reserve services in terms of a broader review of regulating services which would consist of two broad actions:

- Assessing the appropriateness of the current level of information available to the market and introducing improvements; and
- If improvements to market signals were insufficient, the AEMC could explore modifying the current five-minute regulation FCAS market to include markets in different timescales. This would have the benefit of allowing AEMO to modify the requirements as the dynamics of the system change over time in a way that is not duplicative of existing frameworks. Operating reserves are also commonly embedded in regulating services in international markets.

Market signals for operating reserves

With the nature of reliability shifting from capacity adequacy to incorporating a question of energy adequacy with the changing energy fleet, appropriate market signals will play a pivotal role in ensuring reserves in operational timeframes. The shift to five-minute settlement (**5MS**) implicitly incentivises reserve flexibility and the new generation fleet exhibits greater flexibility than the assets they are replacing. This will be further complemented by the volume of dispatchable capacity investment expected under the Capacity Investment Scheme (**CIS**).

The interaction of the five-minute spot market with the contracts market already incentivises participants to manage their reserves across their portfolio to optimise availability during high price periods (tighter energy availability) and risk management. The risk appetite of retailers is such that as the variability of VRE increases, they will either contract or build firming capacity to manage hedge positions and ensure economic supply to consumers. Provided the market reliability and price settings remain appropriate, CS Energy considers the interaction of the existing energy and financial markets apt to deliver expected reliability outcomes.

Market participant operating decisions rely on the provision of information by AEMO through the pre-dispatch (**PD**) and Short-Term Projected Assessment of System Adequacy (**ST PASA**) processes, as well as the Lack of Reserve Declaration Guidelines (**LRDG**) and reflected in Lack of Reserve (**LOR**) declarations. PD and ST PASA provide the market with a dynamic monitoring of reserve adequacy, the former providing close to dispatch information regarding prices and reserves while the latter signals short-term availability and demand forecasts, and potential reserve shortfalls. Combined, this information incentivises participants to manage energy availability when required by the market. For example, in its previous submission, CS Energy outlined the latent Rate of Change (**ROC**) capability currently in the NEM. Participants will trade off increased ROC against incurred maintenance costs and reflect this in bids and the forecast price. Pricing outcomes already provide this signal by reflecting the mismatch between ROC and changing demand. Greater transparency of participant ROC has resulted with 5MS and the potential of the PD to forecast ROC price outcomes enabling participants to respond to the market signal by re-offering ROC capability. While this ROC capability will change over time, clear market signals on both the need and availability of this capability need to be incorporated into these processes.

AEMO's current undertaking to enhance the ST PASA provides a valuable opportunity to ensure that the market signals being provided are aligned with the changing needs of the system. This could include the provision of new information, new forms of expressing information and processes to assess both VRE and net demand forecast accuracy. CS Energy notes that while the Directions Paper refers to AEMO's Annual Forecasting Accuracy Report, this only encapsulates AEMO's medium-term forecasting that is not critical for dynamic reserve management. CS Energy is hopeful that the enhanced ST PASA process will include reporting of forecasting accuracy in operational timeframes, particularly during periods of tighter supply.

This forecasting accuracy could also lead to improvements in the existing LRDG. CS Energy has repeatedly advocated for changes to the LRDG to better reflect system conditions and notes that AEMO has an obligation under the National Electricity Rules (**NER**) to regularly review their efficacy. For example:

- The existing reserve assessment processes incorporate a measure of uncertainty via the Forecast Uncertainty Measure (**FUM**), but they do not incorporate a measurement of the system ramping requirement or available system flexibility to meet this requirement.¹ AEMO and the AEMC should determine whether these can be modified to include ramping events and clearly communicated to the market or whether a separate operational metric is required on which the volume of procured reserves is based. In either case, there will be linkages; and
- Declared LOR generally result from forecasting error from either VRE or net demand. Actual LORs incorporate AEMO's forecasts rather than being calculated on real-time market data. It would be useful for the market if either AEMO or the AER undertook analysis of LOR declarations ex-post to ascertain whether the shortfall was real or attributable to forecast error. This will both aid AEMO in improving the accuracy of its forecasts but will also provide valuable information to the market on LOR trends and future reliability needs.

¹ AEMO, [Renewable Integration Study Appendix C](#), p.53

CS Energy has also proposed the development of a similar “lack of” reserve framework for FCAS to provide critical market signals for the co-optimisation of reserves for energy and FCAS requirements.

The Directions paper also proposes the publication of information on energy limited plant, specifically the state of charge of batteries. This information could be incorporated into the enhanced information processes, and CS Energy is of the view that greater market information is preferential as it helps in risk management and portfolio operation, and tends to lead to more competitive behaviour. In specifying what information is to be published, the AEMC needs to be clear about what constitutes energy limited plant in this context. For example, traditional coal and gas generators have to manage their fuel stock, and this can impact short-term energy availability, and hydro plant will have varying volumes of stored energy. The duration and flexibility of demand-side response will also be “energy limited”. While the state of charge of battery storage is already available to AEMO via SCADA and could be aggregated to a regional signal to the market, the AEMC needs to clarify its intent in relation to other plant. CS Energy does acknowledge that the current *Integrating price responsive resources* rule change underway may provide incentives for some visibility in this space.

Procurement of FCAS at a regional level

It is interesting that the Directions paper considers Powerlink’s proposal of the procurement of FCAS at a regional level pre-contingent given this was identified by AEMO as a recommended action in its report on the event of 25 August 2018.² This has not progressed following the introduction of mandatory Primary Frequency Response (**PFR**).

While procurement of regional reserves will have an associated economic cost, there will be clear benefits, and furthermore regionalisation will create important signals as the market transitions. Operationally, this would be simple to implement but CS Energy suggests that a limit be considered that would set an upper bound on the volume of FCAS procured in any one region. This limit could be static or dynamic and should consider the allocation based on scenario planning of potential separation events and the opportunity cost of not procuring regionally.

If regional FCAS procurement proceeds, the AEMC needs to consider whether FCAS prices will continue to be set globally and by the marginal MW. If not, the pricing framework would need to ensure that it does not inadvertently lead to perverse outcomes. Costs would still be recovered regionally.

Given the increase in planned Renewable Energy Zones (**REZs**), sub-regional FCAS procurement is worth consideration. While readily implementable, it does add complications to the “who pays” question given the traditional causer-pays approach would not apply. Sub-regional FCAS would allow maximal exports from a REZ when operating as a credible contingency, thus providing benefits to participants within the REZ. CS Energy suggests that any sub-regional procurement should be based on a beneficiary pays model rather than globalising the cost-recovery which would impose additional costs on consumers in the instance of sub-regional lower FCAS procurement. Different models could be considered for this cost-recovery, including “runway type” arrangements.

² AEMO, [Final report – Queensland and South Australia system separation on 25 August 2018](#), January 2019

Conclusions

CS Energy supports the AEMC's decision to cease consideration of an explicit operating reserve market. The existing market frameworks and settings are appropriate to incentivise reserve availability and could be further enhanced by improvements in the information provided to the market. In particular, CS Energy would like to see a review of the LRDG frameworks and an equivalent framework established for the FCAS markets.

CS Energy supports the regional procurement of FCAS with a cap imposed on the maximum volume in any one region. While not opposed to sub-regional FCAS procurement, cost-recovery frameworks would need to depart from the usual causer-pays approach and consider a beneficiary pays model.

If you would like to discuss this submission, please contact myself on either 0407 548 627 or ademaria@csenergy.com.au.

Yours sincerely



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