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Energy Security Board
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Response to Post 2025 Market Design Issues Paper

CS Energy welcomes the opportunity to provide a submission on the Energy Security Board's (ESB) Post 2025 Market Design Issues Paper September 2019 (**Issues Paper**).

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 coal-fired power stations and Wivenhoe, a pumped-storage, hydro-electric peaking plant. 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.

General comments

CS Energy supports the review being undertaken by the ESB. The task faced by the ESB in developing a market design that will meet current and future challenges is formidable. It is imperative upon all stakeholders to ensure any change, whether wholesale or incremental, produces a market design that will provide a reliable and secure supply of electricity at least cost to consumers.

Our detailed response to the Issues Paper is set out in the Attachment.

Yours sincerely

A handwritten signature in black ink, appearing to read "Teresa Scott".

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ATTACHMENT

1. Do we need to make a fundamental change to the market design?

CS Energy strongly encourages the ESB to undertake a holistic review of the NEM market design, including whether there should be a fundamental redesign of the market instead of “*simply layering incremental changes*”¹. The ESB has been given the opportunity to change the market design, so it is incumbent on it to ask the question: “do we need to fundamentally change the design?”

CS Energy suggests that the ESB should not start this review from the central premise that the reforms proposed are an add on to the current trading arrangements that are centralised through AEMO. CS Energy is of the view that the starting point for the review should include an assessment of possible underlying market architectures to ensure we make the best use of existing resources (ie satisfy short run efficiency) and promote efficient investment in new resources (ie satisfy long run efficiency). At the time of the NEM’s inception in 1998, a centrally integrated model was adopted. However, much has changed in the last 20 years. Technological advances, data improvements and the proliferation of smart devices underpin opportunities to improve the market design.

It is not clear to CS Energy that the ESB will undertake such a holistic review. CS Energy understands that the ESB’s preference is to avoid a fundamental redesign of the market. However, if the goal is to produce a market design that will provide a reliable and secure supply of electricity at least cost to the consumer, CS Energy believes that all options should be on the table. To do otherwise limits the ESB’s options, which risks a sub-optimal outcome. While CS Energy recognises no model is perfect and any proposed model is likely to include basic elements of other models, we should not start the process constrained in our thinking.

2. Opportunities and challenges are not static

CS Energy somewhat agrees with the five key opportunities and challenges identified by the ESB in the Issues Paper and provides further comments in section 3 below on each of these issues.

CS Energy is however concerned that too much emphasis will be placed on these issues in determining the market design. The opportunities and challenges that any market design must respond to are not static. The issues underpinning the market design at the NEM’s inception differ to the issues the market is currently facing, which are likely to differ to the key issues that the market will face looking forward 10-20 years.

Electricity markets are always transitioning. Inherent in any proposed design must be that it is responsive to future opportunities and challenges. CS Energy appreciates the difficulty for the ESB in this, the ESB does not have a “crystal ball” to identify what these future opportunities and challenges will be. Given this, it may be that the market design includes mechanisms for increased consultative market reviews with industry stakeholders to identify and pre-empt the opportunities and challenges facing the

¹ Issues Paper, section 1

market, including a focus on innovation, prototyping and development. A key strength of the current market design is its rule making process. Market participants, consumers and other industry stakeholders are actively involved in this process. CS Energy believes a current weakness is the failure to invest in research, development and prototyping of new market elements, such as upgrades to the dispatch and pricing engine.

Additionally, the longevity of any proposed market design could be assessed not only against the current opportunities and challenges identified by the ESB but against other known scenarios for example, the development of the NEM from its inception.

CS Energy is also concerned that the key opportunities and challenges do not necessarily neatly fit with a discussion on the design choice. As discussed in section 1 above, we think the starting point should be an assessment of the underlying market architecture. The key question underpinning this choice being the level of central control, integration and optimisation, assessed against key principles such as pricing of constraints, competition, transparency of information and innovation.

Note that CS Energy is not expressing a view that the current central integrated model is the right or wrong model, or that with the advancements in technology central integration would not be inherently better. CS Energy simply believes the ESB should take the opportunity to review the underlying market architecture, given that the review opportunity has been presented.

3. Opportunities, challenges and risks

CS Energy's specific comments on the opportunities, challenges and risks identified by the ESB are set out below.

3.1. Driving innovation to benefit the consumer

Considering technological advancements and recognising that data can now be applied economically at a micro level, any proposed market design should expect and facilitate both:

- (a) consumers who will independently procure, manage consumption and pay (including by settlement in the wholesale market) for electricity; and
- (b) consumers who will continue to procure, manage consumption and pay for electricity through retailers or other energy service providers (who will mitigate price, consumption and volume risk).

CS Energy recognises that because electricity is an essential service, there will always be a trade-off between consumer protections and the flexibility offered to less sophisticated consumers to independently access the wholesale market (eg allowing consumers the ability to respond to wholesale price signals inherently requires consumers to be exposed to the wholesale price). Electricity markets must however evolve to allow consumers to benefit from responding to efficient prices. CS Energy wholeheartedly agrees with the ESB that any proposed market design must better incorporate mechanisms to facilitate the participation of those consumers who wish to actively engage in the market.

3.2. Investment signals to ensure reliability

In the Issues Paper, the ESB poses the question “*the key question for future market design is therefore how the market can deliver efficient price signals to deliver the optimal level of investment and consumption*”². CS Energy agrees with the ESB in its framing of the delivery of reliability in the context of both investment and consumption.

In respect of delivering an optimal level of investment, CS Energy considers this will be challenging for the ESB. The ESB expressly acknowledges that under the current energy only market design, policy interventions have meant that the market is not “permitted” to operate as designed. If policy makers interfere with any future market design, or external policies are incompatible with any future market design, the necessary investment signals will continue to be distorted. This conundrum can only be resolved if investors are confident future policy development will be integrated and consistent with any future market design.

In respect of delivering an optimal level of consumption, few consumers can currently signal the price at which they are happy to voluntarily shed load so the reliability standard and scarcity price is set by the regulator. CS Energy thinks a key objective of the new market design should be to resolve this market failure. If the proposed market design provides the flexibility for consumers who wish to independently engage in the market to do so, it should also facilitate:

- (a) a more accurate assessment of the standard of reliability consumers expect the power system to deliver; and
- (b) increased consumer participation in demand management.

CS Energy also suggests there is a second key question for the ESB to address in terms of the reliability challenge. The issues raised by the ESB in the Issues Paper focus predominately on the signals for future investment. Just as important is ensuring any proposed market design adequately incentivises incumbent generation to remain in the market to underpin an orderly transition to renewables.

The increasing penetration of renewable generation is resulting in lower average wholesale prices, thereby reducing the ability for baseload generation to recover their operating and capital expenditure. In CS Energy’s opinion, the reform initiatives identified by the ESB in section 4.2.2 of the Issues Paper do not address this issue, and will not avoid the disorderly exit of incumbent generation. If the proposed market design does not include a mechanism addressing this issue, such as a capacity payment mechanism, incumbent generation will become increasingly uneconomic and the market may face a disorderly exit of incumbent generation.

3.3. Integration of DER into the NEM

CS Energy agrees with the issues identified by the ESB in the Issues Paper in respect of the integration of DER into the NEM.

Additionally, CS Energy is of the view that to facilitate the integration of DER into the NEM, the proposed market design will necessitate a shift in current thinking on how the grid is viewed. Power flows on the grid will require the grid to be looked at “as a whole”, instead of the current distinction between transmission and distribution.

² Issues Paper, section 4.2.4

Much discussion is on how these distributed elements should or could be 'controlled' by a system operator, like existing larger transmission connected generators. Increasing capture of ever smaller generators under regulation, specification and direct control may be unproductive, instead control of these distributed resources could be performed through market based incentives.

3.4. System security and resilience

At the time of the NEM's inception in 1998, "ancillary" services necessary for a secure power system were not separately procured as supply was largely provided by the same technology ie large thermal plant. Supply of the services required for system security was a by-product of generation. The change in the generation mix to a greater concentration of asynchronous, variable generation, does not alleviate the need for these services. There is however no longer confidence these services are available to the level required as the services are no longer a by-product supplied equally by all generation.

CS Energy believes any proposed market design will need to ensure there is a mechanism to procure and price all services necessary to maintain a secure power system. CS Energy does not necessarily consider that separate ancillary markets must be designed for each service, the services could be procured and priced in a single energy price. Ideally system pricing should respect the heterogeneity of supply from different resources, with settlement amounts rewarding these services. If the proposed market design does not contain a mechanism to procure and price these services, it is difficult to see how the proposed design can deliver a secure electricity supply, given the transformation underway in the energy industry.

CS Energy considers the services necessary for a secure electricity supply include:

- (a) frequency control;
- (b) inertia;
- (c) voltage control;
- (d) re-active power;
- (e) ramping; and
- (f) short term commitment and cycling.

If these services are not implicitly or explicitly included in pricing moving forward, there is a risk supply for these services will reduce from incumbent generation, which is needed to underpin the transition to a decarbonised grid, as they are likely to become increasingly uneconomic. At the same time, new plant that can provide these services will not enter the market as required and worse still the demand for these services will increase, because the resources consuming these services don't have to pay for them.

CS Energy also believes that if all services required to provide a secure supply of electricity are procured and priced, this will result in fewer market interventions and directions.

3.5. Integration of variable renewable energy into the power system

CS Energy considers that if the proposed market design contains mechanisms to procure all services necessary to provide a secure and reliable power system, variable renewable energy should be integrated into the power system in an orderly manner.

CS Energy's concern with the issues identified in the Issues Paper is that the COGATI review will determine where on the spectrum of approach the future market design will lie³. The outcome of the COGATI market review may develop a mechanism to co-ordinate generation and transmission that is inconsistent with some potentially superior market design options.

4. Assessment framework

CS Energy agrees with the ESB that the overarching principle for evaluating the final outcome is that the outcome satisfies the National Electricity Objective.

In respect of the other principles identified by the ESB for evaluating the final outcome, subject to the issues raised below CS Energy agrees with the principles.

4.1. Future government policy changes

CS Energy does not believe this principle should be included in the assessment framework. No parliament can bind a future parliament. And there is no market design that will withstand policy interference incompatible with its inherent design features.

4.2. Technology neutral

CS Energy agrees with the ESB that the aim of any proposed market design should be to allow all resources to compete, irrespective of technology. CS Energy believes however the secret to an *efficient* design will be to allow the heterogeneity of different technologies to be rewarded (see our comments in section 3.4 regarding security services). Electricity generation has different characteristics, reliability, emissions, voltage, ramping, inertia, etc. and these could be priced with finer adjustments to the cleared commodity, or "vanilla" price.

³ Issues Paper, section 4.5.4