

30 September 2019

Dr Kerry Schott  
COAG Energy Security Board  
Email: [info@esb.org.au](mailto:info@esb.org.au)

Dear Dr Schott,

### **Response to Post-2025 National Electricity Market Design Issues Paper**

Lighthouse Infrastructure Management Limited (Lighthouse Infrastructure) welcomes this opportunity to respond to the Council of Australian Governments Energy Security Board (ESB) issues paper *Post 2025 Market Design* issued September 2019 (Issues Paper).

Lighthouse Infrastructure is an institutional infrastructure investor, whose investment mandates explicitly focus on facilitating the new infrastructure needed for Australia's future. In the energy sector a transformation is necessary to protect our economic and environmental wellbeing. Lighthouse Infrastructure has invested client funds in 200MW of Australia's early utility scale solar PV generation.

We applaud the ESB for recognising that changes in the National Electricity Market warrant a holistic and coordinated review of market design. It is particularly encouraging from our perspective that the Issues Paper recognises the energy transition will involve substantial capital investment and that establishing a framework that facilitates efficiency of investment will be of significant value to consumers.

This submission does not attempt to answer all questions posed by the Issues Paper, but instead provides concise feedback in relation to a small number of matters Lighthouse Infrastructure considers are critical considerations for the reform process.

#### **Q1: Scenarios and shocks to be considered**

**Rapid decarbonisation:** Market design should contemplate the possibility of rapid decarbonisation during the next decade. Whilst Australia's decarbonisation ambition is the subject of vigorous debate presently, and this could resolve in a transition that is either relatively slow or relatively fast, it is the rapid end of that spectrum for which we are least well prepared. Our observation is that the expectations of the community are shifting in this direction. There is a real possibility that the Australian public, in concert with other nations, responds to the harm expected from climate change by resolving to embark on decarbonisation with significantly greater urgency than contemplated in Australian energy system planning to date. The electricity market will be central to this country's decarbonisation efforts. Market design should be able to accommodate a rapid transition.

**Transitory measures:** We also suggest the ESB is prepared to make market design changes that are explicitly temporary or one-off in duration. This is particularly relevant to allowing for rapid decarbonisation. The system has entered a phase of disruptive transition, that has followed a period of relative stability and may precede another period of stability. Facilitating an effective transition may require market design features during the next decade that may thereafter become unnecessary or inefficient. In particular, a relatively stable system implies a market design that optimises the operation of existing assets and incremental system additions/modifications. By contrast a market in transition requires a clear blueprint and matching economic incentives for new investment, managed exit of redundant assets, and mechanisms to ensure equitable treatment of consumers. We encourage the ESB to consider and recognise additional flexibility to cater for these two distinct time horizons.

#### Q4: Challenges and risks of the present market design

**Investment signals to ensure reliability:** As an institutional investor it is particularly apparent to us that inadequacy of investment signals is preventing development of the new supply capacity required to ensure reliability and by extension enable a successful energy transformation. In summary we would highlight that:

- The value of assets that provide responsive/flexible capacity (as opposed to energy) and related but separate attributes such as inertia is not well recognised by the current market design. For example there are substantial economic benefits of storage devices that are not readily monetised. As a result such assets or services are not being provided at efficient levels.
- Wind and solar development is being driven by an imbalanced set of incentives and signals. For example:
  - In some grid areas generation is being developed beyond the efficient level, manifesting in congestion curtailment, high electrical losses (deteriorating MLFs) and connection delays.
  - The process for approval of new projects does not take into account whether the generation profile will enhance or erode reliability, specifically that the system needs its variable renewable energy assets to have profiles that are correlated with demand and uncorrelated with each other.

In the context of a major system transformation, it should be clear to all system participants what assets the system needs and where and when they are required. The private sector can then mobilise to efficiently execute those assets. We note that some of the parties who are key enablers of projects, such as corporate PPA buyers and the institutional debt and equity markets, are not always in a position to form their own accurate views of the specific needs of the electricity system, particularly given how quickly that system is evolving. System transition must be guided by a clear and detailed long term plan, developed explicitly in accordance with the NEO.

**Cost curve backwardation:** Typical frameworks for investment signals are undermined in the present electricity system by the expectation that the cost of building new supply will fall over time. The expectation of falling cost applies most acutely to battery energy storage, demand side response, solar PV generation, and wind generation.

To illustrate we first reflect on how the supply base for a commodity typically evolves; sources of the commodity are developed in reverse cost order with lowest cost first. Each new supply participant has a reasonable expectation subsequent prospective sources will not in general be cheaper, or at least that cost efficiencies will take significant time to materialise. In such an environment a new supplier entering a supply constrained market can have reasonable confidence that the market price will remain close to long run marginal cost of supply, and that the LRMC will be no less than its own long run cost, long enough to justify its own investment.

By contrast in the NEM today the cost of new supply, either energy or capacity, is expected to fall rapidly. In the case of wind, solar and batteries these reductions are facilitated by falling cost and improving efficiency of manufactured equipment. In the case of demand side response that market is being unlocked by growing engagement of small and medium sized energy consumers, enabled by technology and regulatory reform and promoted by retail innovation.

A party considering long-term investment in new generation supply, be it for energy or capacity, may have reasonable confidence that they represent the lowest cost source of new supply now, but a very reasonable fear that other cheaper sources of new supply will arise in the near future. Substantially lower cost competition may be only one or two years behind. The LRMC of that new supply represents a steadily declining ceiling on the price that today's party can hope to earn. A party contemplating long term investment can have little confidence in a robust business case beyond a small number of years. New generators seek to mitigate this risk through power purchase agreements. However, the buyers under these agreements hold the same fear that cheaper PPAs will be available in the near future, and this partly explains why PPAs are only available at prices far lower than the prevailing market price.

The expectation of reducing costs is exacerbated by the uncertain prospect of government intervention in the form of:

- An economic support scheme for new generation, which would effectively reduce the cost of future assets developed under such a scheme relative to similar assets developed just prior to the scheme.
- Extending the life of existing generators, including those owned by Governments who may have conflicting non-economic objectives.
- Building generation under Government ownership that the market might not otherwise build, such as the proposed Snowy Hydro 2.0 scheme.

In this environment of long term declining cost structure and potential but uncertain government intervention, investors face an ongoing incentive to wait rather than commit to long term assets.

Whilst these conditions remain, we believe so too will elevated and volatile wholesale and consumer prices and reduced reliability, driven by significant delays in funding of new low cost renewable power.

We will welcome further opportunities to provide an institutional capital perspective to the considerations of the ESB, market bodies and other stakeholders during the important Post 2025 Market Design project.

Yours sincerely

A handwritten signature in blue ink, appearing to be "Jevon Carding", written in a cursive style.

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