



ESIA Submission

Energy Security Board

Response to Post 2025 Market Design Issues Paper

4 September 2019

Submissions due 30 September 2019 to info@esb.org.au

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Introduction

The Energy Savings Industry Association (ESIA) is pleased to make this submission to the Energy Security Board (ESB) in response to its Post 2025 Market Design Issues Paper, September 2019.

The ESIA represents businesses that are active participants in a range of energy savings schemes operating across Australia. ESIA members and their clients have been responsible for rolling out more than 2 million energy savings upgrades that have resulted in significant electricity bill savings for customers, reduced greenhouse emissions and reduced peak electricity demand.

Market design lags major developments in demand side - customers paying more

The current National Electricity Market (NEM) design and structure essentially represents codification of pre-existing practices of some 20 years ago.

The market design has not kept pace with the enormous developments that we have seen over the last 10 years and as a result does not consider the much more cost-effective demand side technologies and approaches that are now an integral part of the system now and into the long-term future.

In fact, demand side technologies have been constrained and their value and contribution has not been recognised or rewarded. This has led to a suboptimal level of investment on the customer side of the meter and considerable over-investment in the supply side. This situation has resulted in electricity customers paying much more than they need to for electricity.

Scope of Issues Paper - opportunity for better demand side participation

The ESB is seeking feedback in its Issues Paper on:

- the possible future scenarios that will be used when assessing options for change;
- the assessment framework for evaluating market design options;
- the opportunities, challenges and risks that need to be considered as the project looks to identify market design options; and
- the implications for market design resulting from these opportunities, challenges and risk.

The ESIA believes that the ESB's review presents an important opportunity to address many of the issues that have constrained the development of more effective demand side participation.

DER, demand reduction and energy efficiency more cost effective than supply side

It is now well accepted that Distributed Energy Resources (DER) and demand reduction and energy efficiency are more cost effective than supply side alternatives. Some of the key innovations relating to big data, artificial intelligence, developments in communications, LED technologies and storage are happening on the customer side of the meter.

End use customers however make investment and purchasing decisions quite differently to the supply side of the industry and customers largely do not effectively respond to price signals. As a result, approaches that work for the supply side of the industry may not work for the demand side of the industry.

Recommendations

The ESIA make the following recommendations to the ESB in its review of the NEM Post 2025 Market Design.

1. Incorporate emissions reduction and maximise demand side contribution into Objective

In considering future market design we believe that there are two major considerations for change regarding the National Energy Objective (NEO).

The National Electricity Objective (NEO) as stated in the National Electricity Law (NEL) is:

“to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:

- price, quality, safety and reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system.”

Firstly, the long-term interests of customers will best be served by ensuring that all cost-effective demand side options are pursued.

Failure to include emissions reductions as part of the Objective risks the development of the NEM in a manner that may increase emissions which will then impose costs on to electricity customers.

All NEM jurisdictions currently have emission reduction targets of net zero emissions by 2050. An increasing number of jurisdictions have renewable energy targets and energy savings targets. Given the strong nexus between energy generation and greenhouse emissions, emissions reductions need to be incorporated in the NEO.

The NEO includes: “to promote efficient investment in and use of electricity services”, however, to date the NEM has done exactly the opposite. The Productivity Commission in its 2013 report concluded that “growth in peak electricity demand is likely to be inducing (or bringing forward) a sizable stream of otherwise unnecessary investment, for which consumers ultimately pay. And the widening gap between peak and average demand is contributing to reduced productivity in the electricity sector.”

Further, there has been a failure to address market failures that have limited the efficient investment in and use of electricity services. In an August 2019 consultation paper to the Australian Government, there was recognition that the market has failed consumers: “The low incidence of time-of-use (TOU) signals in electricity pricing is a regulatory failure that needs to be addressed through the actions of governments, electricity regulators and consumers. However, it is compounded by a market failure in the provision of services and technologies that can contribute to more economically efficient load management, irrespective of the pricing regime”.¹

It is proposed that all air-conditioners, electric storage water heaters, pool pump controllers and electric vehicle charges that are sold will need to comply with a full range of demand response modes. Under a high activation scenario, the demand reduction available was estimated to be 5,190 MW in Australia by 2035 (with net benefits of \$4.3 billion). Market design considerations need to

¹ Equipment Energy Efficiency (E3) Consultation Paper: ‘Smart’ Demand Response Capabilities for Selected Appliances, for Australian and New Zealand Governments, August 2019, p10

ensure that they maximise the capture of benefits - not minimise them as has been the experience to date.

The second consideration for change to the NEO, in addition to emissions reductions, is that demand side options need to be given equal consideration to supply side options.

This does not mean that demand side needs to behave exactly like a generator, in order to be considered, but rather that due recognition of demand side attributes need to be given in order to maximise their contribution.

2. Appropriate management and governance to maximise demand side resource potential

To access the cost-effective opportunities currently available from the demand side of the industry, a different focus and perspective will be required. To date, this has been beyond the NEM institutions and the ESIA believes that a specialist organisation that is tasked with specifically supporting and developing demand side solutions needs to be established.

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The Clean Energy Council (CEC) DER Revolution: A Roadmap for Australia's Enormous Rooftop Solar and Battery Potential (August 2019) provided a useful guide as to some of the changes required:

- Policy makers should establish market frameworks that will enable DER to supply new energy services. This could include new markets to support grid function, system optimisation (avoiding unnecessary investments) and system balance.
- The Australian Energy Market Operator (AEMO) and the Australian Energy Market Commission (AEMC) should consider how aggregation of DER can be optimised using a single asset classification. Third-party aggregators should be able to provide wholesale demand response, export and Frequency Control Ancillary Services (FCAS) under a single classification.
- DER should have the same market access as utility-scale assets. Where this market access is prevented by regulatory barriers, this should be reviewed by the AEMO and/or the AEMC.
- Policy makers should adopt alternative network revenue models and tariff structures and supporting retailer reforms that would enable increased grid-enabled value exchanges such as peer-to-peer (P2P) trading, network service provision by DER and VPP activity.
- Policy makers should ensure that the Distribution Market Operator (DMO) role (which would be a commercial role) is separated from the Distribution System Operator (DSO) role in electricity distribution market reform options being considered.

When DER is considered it typically does not include demand reduction and energy savings technologies and systems. Expanding beyond rooftop PV and batteries, DER include smarter and more efficient appliances as well as demand switching and load reduction.

The ESIA would like to see a clearly articulated approach to energy use which includes demand management (in particular peak demand management) and energy efficiency and productivity.

Formation of an Australian Energy Market Demand Side Operator (AEMDSO)

The ESIA believes that a specialist organisation needs to be established with a specific focus on demand reduction: an Australian Energy Market Demand Side Operator (AEMDSO). (We first made this recommendation in 2017 and this submission builds on those concepts.) A precedent for a separate body was set by the establishment of the Clean Energy Regulator to manage aspects of the renewable energy industry, and emission reductions.

The AEMO and its predecessors have historically focussed on supply side solutions with little consideration for demand side solutions. For market players, the focus has rapidly shifted over the past two decades as fuel shortages have pressured end customers with higher prices and power outages. While energy market complexities have kept the issues largely out of the mainstream news, many of the solutions are within easy reach of households and businesses. Unless the blueprint of energy market operation organisations is rewritten, these options will remain untapped.

As an example, in AEMO's Gas Statement of Opportunities in 2017, it claimed that, to deal with the expected gas shortages, 'the most efficient solution, to meet price, safety, reliability, and security of supply objectives in the long term interest of gas consumers' are a combination of six supply options ranging from redirecting LNG exports to new gas fields. There are countless reasons why there should have been several other dot points in the GSOO pinpointing demand side options. Demand side options would help alleviate the immediate energy crisis and assist in reducing customers' energy costs.

Given the heightened concern around supply reliability and high energy prices, the requirement is paramount that an AEMDSO be established.

Requirements of an AEMDSO would need to include:

- establishment of a separate, fully independent organisation: designed specifically to counterbalance the supply-side focus of the current NEM institutions;
- establishment of a Board comprised of demand side experts; and
- funding provided in the same ways in which the AEMO is currently funded - through charges to retailers that would get passed on to customers.

Roles of an AEMDSO would need to include, but not be limited to:

- assurance that demand side policies and activities are factored into electricity and gas planning processes;
- development and implementation of rule changes that facilitate demand side participation and investment;
- undertaking of research and analysis of demand side potential that will guide policy and development and rule changes;
- research and publishing of data on the demand side of the market that will assist customers and service providers to actively participate;
- development and monitoring of baselines for wholesale demand response and also network demand response;

- making recommendations and implementing actions that address market barriers to energy efficiency and demand side management; and
- undertaking the distribution market operator (DMO) role that has been suggested by the CEC.

3. Network market competitiveness

According to the Productivity Commission, the “growth in peak electricity demand is likely to be inducing (or bringing forward) a sizable stream of otherwise unnecessary investment, for which consumers ultimately pay”.

The E3 report on Smart Appliances also drew attention to the fact that wholesale electricity prices are also impacted, because the highest-cost peaking plant sets the pool price during peak events.

In its 2018 *Inquiry into Retail Electricity Tariffs*, the ACCC found that average residential tariffs increased by 56% in real terms between 2007/08 and 2017/18.¹¹ The main reasons were network charges (accounting for 38% of the increase) and wholesale electricity prices (27%).

Demand response has long been considered as an alternative to network augmentation, however, to date the level of actual demand response has been underwhelming.

The E3 report identified that of the nine reported trials in 2013, only one evolved into a full-scale program - Energex PeakSmart. Energex has 70,000 air conditioners connected and supported by the program. Customers in an eligible area receive \$200 for 4kW to 10kW air conditioner and \$400 for 10 kW or more.

Demand response can encompass a broad range of activities, other than cycling air conditioners. It could involve a permanent reduction in energy use through an upgrade to more efficient appliances or equipment.

The wholesale demand response mechanism that is being implemented by the AEMC is an important initiative that starts to recognise the contribution that demand response can make. There are several shortcomings however as (i) it will not apply to residential and small business loads and (ii) it is not clear how it will recognise the contribution that a permanent reduction in demand entails.

Nevertheless, the AEMC has recognised (in its Draft rule Determination²) that:

- The role of consumers, and importantly the technology to enable consumers, is changing. Technology has evolved and become cheaper, such that more consumers want to and can participate directly in the wholesale market. There is therefore capability and significant interest now to accommodate consumers who want to engage and participate.
- In the longer term, the Commission considers that moving to a two-sided market will assist the NEM in effectively evolving and transitioning to the future power sector, whatever that future may look like. A two-sided market is characterised by the active participation of the supply and demand side in dispatch and price setting. Moving to a

² AEMC Draft Rule Determination - Wholesale Demand Response Mechanism, 18 July 2019

two-sided market should enable the transition to a future NEM characterised by increased variable supply and more flexible, price responsive demand.

To be able to gain the full benefits of demand response, customers and other market participants (eg a Demand Response Participant (DRP) that can aggregate customers) need to be able to capture not only the wholesale market benefits but also network benefits. To enable this to occur network businesses need to:

- establish avoided network pricing at relevant parts of the network; and
- DRPs should then be able to receive payment based on the level of demand that was reduced.

The pay-off for customers is massive if demand response is effectively activated. The E3 analysis showed that 5,190 MW could be available in Australia by 2035 (with net benefits of \$4.3 billion) and this was just for the residential sector. The contribution across businesses would be expected to be considerably more.

[More Information](#)

Please direct all queries regarding this submission to comns@esia.asn.au