

13 May 2011

Mr. John Pierce
Chairman
Australian Energy Market Commission
Level 5, 201 Elizabeth Street
Sydney NSW 2000

by email: submissions@aemc.gov.au

Submission on Strategic Priorities for Energy Market Development

Dear John,

1. General comments on the discussion paper and the public forum held on 1 April 2011

The discussion paper is a refreshing document in that it highlights several aspects of the NEM which are causing growing concerns across several sections of the community. The paper is well written and easily understood, so we hope the AEMC will receive considerable feedback. This is a unique opportunity to have a major influence on the NEM framework, probably the first major change to the NEM since its inception in the 1990s.

The forum used to launch the discussion paper was an excellent event; the participation of so many delegates in the discussions that followed each presentation was a testimony not only the degree of interest but also to the support for change, particularly to make demand side programs work within the NEM framework.

All the speakers at the forum had substance to their presentations. Possibly the most interesting was Professor Paul Simshauser, who noted that “we must start looking at the demand side [for the next wave of reform] because the supply side has already been reformed.” This statement underlines the importance of the NEM continuously evolving and reforming to remain efficient and relevant to the communities it serves.

This statement, coming from a representative of AGL, confirms what we believe: that the gentailer model effectively stifles any further innovation from the supply side. This issue is discussed further in item 5 below.

We will focus now on matters concerning the development of a framework that enables demand side participation.

2. Peak demand

Many of the issues in the discussion paper stem from the continuing growth of peak demand. While “moderate growth” predictions currently suggest peak demand growth of around 2.6%, actual annual peak growth from 2005-2009 was about 3.5%.

To put that in perspective, since 3% may not seem a very large figure, a 3% per annum peak growth means the NEM must double the electricity infrastructure (generation, transmission and distribution capacity) about every 20 years. Investment to replace retiring capacity comes on top of this.

While the discussion paper recognises peak demand as one of the key challenges, we believe it in fact underlies the other challenges noted in the paper, namely: investment requirements, rising prices, and market resilience.

While the paper describes many of the benefits of DSR, there appears to be considerable confusion around which demand response mechanisms work in the NEM, and which ones currently don't. This is explored in more detail in item 3 below.

The paper mentions that there is some evidence of demand being price responsive. The examples given, however, are of generally high prices causing a general decrease in demand. High prices are a blunt instrument, and are an inefficient way to reduce growth in peak demand.

We believe that demand response programs work better when based on carrots, rather than sticks; when a program is carefully targeted at the actual problem that needs to be solved, it can be highly rewarding to participants while still being more efficient than broad price rises.

3. Which types of DSR work in the NEM, and which ones don't?

When considering demand related programs there are in fact four categories of customers :

- The very largest energy users who are able to accept the wholesale price and manage the associated risks themselves.
- Commercial and industrial customers –most C&I customers negotiate fixed energy prices from an electricity retailer. Although they are often able to alter their demand on request, they have little to no leverage to get their retailer to reward this flexibility.
- Small to medium enterprise customers – there is considerable potential for demand activities from this segment, but each SME requires some level of investment in automatic control and monitoring before it can participate.
- Residential customers – a completely technology-driven demand that can only happen if (a) smart metering is in place, and (b) the regulatory environment avoids barriers to access to control and monitoring facilities by interested parties.

The discussion paper lumps these customer categories together, which obscures the distinct issues faced by them.

For example, much is said about smart metering, and the introduction of smart meters to residential customers. The reality is that large energy users – C&I customers and even some SMEs – have had smart meters for many years.

If, over the course of a decade, the NEM has largely failed to take advantage of DSR from such customers that already have smart meters, why should anyone expect a residential AMI roll-out to fare any better?

There will be no economic return on AMI unless demand responsiveness can be made to work. This issue is common to many electricity markets, and is rarely adequately addressed.

Very large energy users typically only use their demand capabilities for price hedging and occasionally for network support. While this satisfies their desire to extract more value from the energy they have to purchase, the reality is that they forego considerable value because their demand capabilities could have wider applications in a properly disaggregated electricity market.

C&I customers are not generally able to participate in a substantive demand response program without the help of an aggregator (who may be their retailer). This is because their demand capability, by itself, is likely to be too unreliable and too small to be of value to DSR buyers.

SMEs, such as farmers, supermarkets, chain stores, and others, require technology to participate in a DSR program and can only do so economically in groups.

Programs that can be made to work in the current NEM framework are:

Demand program	Description	Issue in the NEM
Price response	Selling DSR directly to a retailer so they can physically offset high demand at times of high prices	<ul style="list-style-type: none"> • Can work but is undervalued by retailers • Gentailers prefer to use their own generation • If the customer churns, the new retailer may not want to use the DSR capability (i.e. the DSR is not portable in the NEM) • Automated DSR can be highly responsive to market signals, behaving like a very fast-starting peaking plant. This means, however, that it suffers disproportionately from the NEM's ex-post pricing approach (due to the 30 minute averaging of 5 minute dispatch prices)
Reserve capacity	RERT program is available in the NEM	<ul style="list-style-type: none"> • The program better suits very large energy users only – it is not practical for other users to participate on their own • The program lacks commercial reality for an aggregator • The program has failed to attract meaningful participants • Access to meter data requires the cooperation of the customer's retailer, and the delivery of that data is untimely and can be expensive when compared to normal business practices
Network support	Limited but growing interest by network companies	<ul style="list-style-type: none"> • Network companies have powerful incentives to build as much as they can • DSR programs are considered high risk by networks when compared to build programs • The requirements for and implementation of capex/build programs are well understood, easy to administer and give a known return • The funded network support programs represent only a fraction of funds available for demand programs and a minuscule fraction of the entire network capex budget • Access to meter data requires the cooperation of the customer's retailer, and the delivery of that data is untimely and can be expensive when compared to normal business practices
Frequency Control and Ancillary Services	Using high speed switching technology to respond to frequency dips	<ul style="list-style-type: none"> • The rules have no provision to allow third parties to operate in the FCAS market therefore only generators, retailer, and scheduled loads can provide frequency response (i.e. DSR aggregators cannot participate) • The technology used by DSR aggregators is not contemplated by the rules

4. The importance of portability

The top bullet point on page 43 of the discussion paper describes an important source of potential value of flexible demand:

“Retailers or aggregating agents [who are] able to sell demand response in the wholesale market as an alternative to hedge cover provided by peaking generation – hence providing a potentially highly significant new tool for managing price volatility if the demand response is verifiable and available when required”

It is essential to realise that, with the current market structure, this cannot be done: the only party which benefits financially when a consumer voluntarily reduces their load is their retailer. There is no potential for the demand response to be sold in the wholesale market.

We believe that disaggregating demand response from energy supply, to allow what is described in the paper to work in practice, is the only way in which DSR can be properly valued in an energy-only market.

The two key benefits of such a disaggregation are:

- A competitive market can develop in demand response services, independent of the retail market (although many retailers may participate). Since the amount of money paid for energy is generally considerably larger than that which could be earned from demand response, rational consumers are unlikely to choose retailers on the basis of their demand response programs.
- Allowing DSR participation to survive a churn of retailer means that there is sufficient time to recoup the costs of installing the equipment needed for high reliability demand response. Without this assurance, it is very hard to justify any site-specific investments, so sites are limited to providing slower, less reliable DSR.

5. Gentaile model

The discussion paper highlights the issues associated with the gentailer model, but does not clearly draw the obvious conclusion: that demand response programs will be very difficult to promote if this model remains dominant.

Generators are keen to run their plant and not keen to see a drop in demand. Extensive and effective demand programs could shave the peak in demand, possibly removing up to 25% of the retail cost of electricity. This would heavily impact generator revenues. Generators and gentailers will naturally oppose substantive demand programs.

A perplexing issue not covered in the paper, but voiced by several delegates at the forum, which we believe is related to the gentailer model, is that wholesale electricity prices in the past 12 months or more have been averaging around \$27/MWh during the day time hours. This is much lower than in previous years, which have averaged closer to \$38/MWh, and yet retail prices have not come down.

The paper tries to identify the reasons for higher retail prices and lays considerable blame on the spending by networks. This may be true for NSW, but in other states network tariffs have not been allowed to jump so greatly, and yet retail prices have risen similarly.

Hence the only consumers who have really benefited from the lower wholesale prices are the very large ones who are able to access the wholesale price directly.

Demand programs have the potential to reduce wholesale prices by up to 25%, but if those savings cannot be transferred back through the market and proportionally on to all users, then the market must change.

Another way to look at this same issue is that the NEM is geared towards producing a price every 5 minutes, which is meant to be a strong signal for investment or behavioural change to ensure the supply:demand balance is maintained. Vertically integrated gentailers, being naturally hedged, can largely ignore this price signal. If a small number of gentailers are to continue to increase in dominance, it is hard to see why we go to the trouble and expense of having an energy market at all.

There is no commercial imperative for a gentailer to participate in demand programs. Rather, such programs may act against their interests by undermining the profitability of their generation assets. By abstaining from such programs, and preventing their contracted consumers from participating, they withhold savings and efficiency gains which would otherwise be able flow through to the market and to consumers.

6. Broader aspects of the NEM

The discussion paper briefly mentions the Western Australian Wholesale Electricity Market (WEM) but unfortunately does not make a proper comparison:

The WEM is in a totally opposite situation to the NEM: the NEM is straining, barely meeting peak demand, whereas the WEM has a comfortable cushion of capacity for years to come. The NEM could not accommodate a major gas outage (which would impact gas fired generation), whereas the WEM recently rode through almost a week with heavily restricted gas use and was still able to meet peak electricity demand on some of the hottest days of the year because it could rely on its contracted DSR capacity.

The AEMC has stated the first priority is building up to \$1.5bn in generation in the NEM for each of the next five years, and that one reason this is difficult is the political uncertainty about carbon pricing. The political uncertainty about carbon pricing also applies in Western Australia, and yet this has not prevented necessary generation investment, taking the WEM from a capacity shortage a few years ago to a comfortable surplus now.

The second AEMC priority is to build the capability for, and capture the value of, flexible demand. The WEM has succeeded here: DSR is widespread and vibrantly competitive; by 2012, it will provide 454MW of the required capacity cushion.

Our conclusion is that the NEM has a governance model that effectively stifles innovation in technology or business models, whereas the WEM has a governance structure that encourages them.

Even in New Zealand, demand aggregation and the participation of independent DSR aggregators have been welcome in their frequency control market for the last few years. Transpower has also openly welcomed DSR aggregators to provide network support services.

7. Summary

A major review of the way the NEM works and whether it can deliver on the AEMC's three stated priorities is timely and certainly warranted. There are growing concerns that the NEM cannot continue in its current form and will struggle to deliver on those three priorities, in particular on realising the value of flexible demand.

From Energy Response's perspective, the major impediments to achieving the AEMC's priorities include:

- The energy-only model – demand programs cannot be easily catered for in an energy only market because they are essentially capacity products
- The blunting of 5-minute spot price signals by 30 minute settlement, such that the most responsive participants are not appropriately rewarded, and are exposed to needless, unhedgeable risk due to the mismatch between physical and financial flows
- The lack of understanding of demand programs in the NEM: each customer category must be looked at individually to make demand programs work for them
- Although DSR can be procured by the incumbent retailer as a physical hedge against high wholesale prices, high churn rates discourage retailers from undertaking any site-specific investments, and the lack of portability hinders independent aggregators
- The governance of the NEM – it is overbearing and stifles innovation. While stability is important for investment certainty, stasis is taking it too far; it should not take years to fix simple issues
- Procedural impediments to accessing meter data by third parties representing the customer
- The gentailer model – gentailers barely participate in the market, and do not pass on any rewards or signals to their consumers
- It is all too easy to end up with either the retailer or the network service provider becoming a “gatekeeper” to a consumer's flexible demand capability. To maximise the value of the flexibility, it should be available for all purposes and used where it is most valuable; such gatekeepers are unlikely to foster such innovation

The NEM was never established to encourage demand programs like DSR and energy efficiency measures, or to handle low carbon supply options that are now needed to combat climate change. It is truly time for a fresh approach to our electricity market, an approach that relies less on political interference and more on market mechanisms to achieve outcomes that are best for the Australian community and encourage the investments we need to grow our economy.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Michael Zammit". The signature is fluid and cursive, with a prominent initial 'M' and a long, sweeping tail.

Michael Zammit
Managing Director
Energy Response Pty Ltd