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Dear Ben,

**AEMO response to Issues Paper: Power of Choice – giving consumers options in the way they use electricity**

AEMO believes the key issues for demand side participation that the AEMC needs to consider in this Power of Choice review are:

- the provision of appropriate pricing signals,
- the provision timely of information, and
- efficiency of investment

AEMO believes that the best chance for the efficient deployment of demand side response comes from ensuring the correct pricing signals are available to customers and that the customers have the appropriate information that allows them to make their energy consumption decisions based on these signals.

Energy efficiency and demand side response are considered some of the most efficient means to address the growing problems of energy consumption and carbon emissions, and the worldwide interest in energy efficiency and demand side participation continues to grow. A number of large international companies are spending huge sums of money on new and innovative responses to the problems encountered in an attempt to draw out the most efficient demand responses. AEMO believes it would be dangerous for AEMC to set the NEM on a path that assumes a particular range of technologies or delivery mechanisms. The AEMC should concentrate on the framework and not the specific solutions. Any approach that attempts to only consider the current views on the range of technologies and responses runs the risk of either blocking new and more efficient solutions, or building an expensive solution that could be left stranded as technology moves forward in unexpected directions.

While Australia is trialling smart grids that rely on smart meters and signals that are delivered via systems managed from within the electricity industry, other options are already appearing globally with companies such as Google and Telstra investing in technologies to remotely control appliances via the internet or the telephone networks.

The MCE has correctly identified that there is an opportunity to improve the incentives for businesses to innovate and encourage the adoption of demand side response. The regulatory regime for network businesses encourages the businesses to build networks to

meet the maximum potential customer demand, rather than looking for ways to identify and utilise customer elasticity and economically match supply and demand. The AEMC should develop a framework that more transparently encourages and rewards the pursuit of commercial demand side participation through solutions that maximise the efficiency in the market. This will require consideration of both regulated and unregulated solutions and both network and energy market efficiencies in an integrated framework.

#### **Market design:**

AEMO is pleased that the AEMC is not proposing any changes to the basic energy market design. The NEM design of an energy only market in combination with published pre-dispatch estimates does provide the correct signals for use in eliciting demand side responses to energy market prices. The extreme prices that are possible within the NEM price cap should encourage rapid responses from those who can see the signal and can respond. However, the AEMC's review should explore whether there are any policy or regulatory inhibitors to those signals being used for such purposes by market participants.

#### **Types of demand side participation:**

The demand responses to price signals will come in a multitude of ways and over many different time scales.

Some of the changes to demand will be in response to overall price increases and will be sustained changes to the way energy is consumed and used. This could include long term changes such as more efficient building design, the installation of insulation and double glassing, and the purchase of energy efficient appliances and machinery. The signals for these changes may come from a range of places including:

- the continuing general increase in the price paid for electricity,
- a desire from consumers to be greener and more energy efficient,
- the use of time of use tariffs that encourage more off-peak consumption and less peak consumption,
- regulations that mandate actual building efficiency or the disclosure of building efficiency, and
- regulations that mandate energy efficiency in appliances, including existing regulations banning incandescent light globes and requiring many appliances carry energy efficiency labelling.

These are, in general terms, one off decisions by consumers that will impact on both the overall growth in energy consumption and the time of day that this energy is consumed. They will drive reductions in peak demand and in most cases, a reduction in overall energy consumption, although some time shifting of demand away from peak period could lead to an increase in total energy consumption.

Other changes will be more dynamic and will be in response to specific price signals that could be provided to consumers indicating that the system is under stress and there is value in reducing consumption at that time. These signals may emanate from:

- the energy market at times when there is a potential shortage of cheap generation, or
- from networks when limits are reached on local networks that could be alleviated by more efficiently managing demand than by network augmentation.

In either case consumers may respond by shifting the timing of the use of appliances and machinery or the increased the use of embedded generation.

This dynamic response is likely to be short term and intermittent, and with appropriate controls and communications could occur without the direct intervention of the actual consumer (for instance remote cycling of air conditioners). Retailers, Distributors or aggregators could implement systems that would provide automatic control to appliances. A number of options exist for this occur, smart appliances that directly respond to signals, remote control switches installed between the supply and the appliance or rewiring specific appliances back to a smart meter for control. Ultimately the response is likely to be a combination of many of these options. AEMC should not skew its work to favour any particular delivery mechanism, but should focus its efforts on ensuring that the policy and regulatory frameworks are as attuned as they could possibly be to rewarding the innovative and transparent use of the demand shifting options where efficient.

The sustained response is more about efficiency and conservation, while the dynamic response is more about demand management and could be driven either by spot market conditions (extreme energy prices) or network conditions (constrained distribution or transmission networks, or deferral of augmentations that might otherwise be needed). The framework for demand side participation needs to consider both of these responses in a way that promotes visible innovation. Visibility and verifiability of the innovation is important to promote its acceptance and broader uptake.

### **Embedded generation:**

As identified in the issues paper, AEMO would expect that with the correct signals and incentives in place, there could be a significant increase in the deployment and operation of embedded generation in the future. AEMO has identified that one of the barriers to the increased deployment of small embedded generation is the cost and complexity of the generator registration process.

AEMO has committed to streamlining the process for participation of small generation in the NEM. Broadly, AEMO intends to promote the adoption of a process that is similar to the customer transfer process used in the electricity retail market. Currently, the NER requires a registration for each individual generating system. In contrast, a retailer only needs to register once and then “classifies” loads without having to register for each one. AEMO believes that adopting a similar classification process for small generators will streamline the

process of participating without compromising AEMO's ability to manage the generation part of the wholesale market.

The work will require a rule change and a series of software changes to AEMO's systems. AEMO is aiming to lodge a rule change on this before November 2011.

### **Time of use pricing:**

For consumers to respond at the time when their actions would have the most value, it is essential that the correct price signals are passed through to the consumer (or the appropriate third party) in such a way they can sustainably deal with it and respond in a timely and transparent manner. The current regulatory framework does not necessarily encourage or even allow this to happen. One of the simplest ways to provide these signals is to encourage additional flexibility in retail tariffs that will allow some of the pricing signals to be passed through to end customers. There are benefits to both network businesses and to retailers and aggregators of consumers seeing the correct price signals.

Network businesses should be free to design network tariffs that best reflect the limits on the local network. The regulatory framework should also reward network businesses for verifiable innovation in this regard, not just implicitly, but also in explicit and measurable ways.

Peak energy consumption in Australia continues to grow at an alarming rate, but the current regulatory framework does not have significant incentives for distribution businesses to find innovative solutions for matching supply and demand, nor to capture any of the benefits should they try, particularly if these incentives have a longer timeframe from implementation. The AEMC should investigate the impacts of a framework that would more explicitly encourage distribution companies to introduce options such as time of use tariffs, maximum demand tariffs or peak load limiters similar to those used in other parts of the world. Such options either globally offered by network business or targeted to local conditions have a huge potential to defer or even remove the need to upgrade transmission and distribution assets. While the current regulatory regime does allow some of this to occur within the regulatory reset period, it is likely that the work to roll out significant demand side response will require a number of years and will therefore be stifled by the current regime. The framework needs to consider options to encourage the longer term roll out of demand side responses.

The introduction of time of use tariffs or demand based tariffs would encourage consumers to consider how and when they consume their energy. The framework should be designed to ensure that the signals to reduce consumption at times of network stress are actually passed through to consumers and should consider the benefits of ensuring that network tariffs are passed through to consumers in a transparent fashion and not bundled into retail tariffs.

While most consumers are currently on fixed price energy tariffs and are not exposed to changes in the spot price, the framework should be designed to ensure that retailers and aggregators do see the signals and are in a position to capture the benefits. The framework

needs to consider the costs of demand side participation as an alternative to peaking generation. This will allow retailers to manage their exposure to high demand and high prices in the most economical fashion, either directly or by buying the service from an aggregator who contracts with individual consumers or embedded generation.

The use of time of use tariffs and the encouragement of demand side participation as a risk management tool at times of extreme prices will require the roll out of interval meters to all consumers and use of its full suite of capabilities so that the response can be accurately metered and rewarded.

### **Smart meters:**

As indicated above, demand side response is likely to be managed through a number of sources, both inside and outside of the energy industry infrastructure. The uptake of demand side response is not predicated on the roll out of fully functioned smart meters (i.e. interval meters with bi-directional communications built in load control and other capabilities). However, in order to ensure accurately quantify the consumer response to the demand side signals in an accurate flexible manner, interval meters with the ability to be remotely read would facilitate the timely remote collection of information on the actual demand side response. The use of other addition capabilities such as load management and customer messaging could be used to facilitate demand side response if they are an economically efficient means of achieving the desired results.

AEMO has been working with industry on the procedures to support the national framework for smart meters, but that project has been put on hold while policy matters necessary for the efficient development of procedures are addressed.

AEMO anticipates that while this Power of Choice review will consider market frameworks for new technology to deliver value to consumers, the specific smart meter policy issues will be resolved through processes separate from this review.

### **Energy forecasting:**

AEMO uses historical consumption data as the basis for forecasting future energy consumption. Historically, with little dynamic response to price signals AEMO and its predecessors have estimated generation based purely on the operation of large scheduled generation and has assumed little, if any, demand side or embedded generation response. Daily demand load shapes have been based on historical usage patterns appropriate for the conditions of expected for that day.

AEMO anticipates that into the future there will be a growing amount of demand side and embedded generation response to price signals. To ensure the most efficient dispatch of large scheduled generation to match the supply and with the anticipated demand it is essential that AEMO has access to data on both embedded generation and anticipated consumption patterns. To aid this forecasting work, AEMO requires full access to the

metered data from all sites with smart meters, including those sites that have not churned from their local retailer.

Further, to ensure the most accurate forecasting and dispatch of scheduled generators and retailers, the framework should be designed to encourage network businesses, retailers and aggregators to provide accurate and timely data to AEMO on their expected behaviour in response to market price signals in all the time frames applicable AEMO's forecasting roles.

Should you require further information, please don't hesitate to contact myself or Mr Rob Jackson on 03 9609 8362 or [rob.jackson@aemo.com.au](mailto:rob.jackson@aemo.com.au).

Yours sincerely



David Swift  
**Executive General Manager Corporate Development**

cc:

Attachments: