29 August 2011

Ben Woodside
Australian Energy Market Commission
PO Box A2449
SOUTH SYDNEY NSW 1235

Dear Mr Woodside

Issues Paper: Power of Choice - Stage 3 DSP Review (EBSS) EPR0022

Origin Energy Limited (Origin) welcomes the opportunity to contribute to the Australian Energy Market Commission's (AEMC) review into demand side participation (DSP) in the national electricity market (NEM).

In an environment of rising peak demand and the associated implications for network expenditure (which has already resulted in a significant shock to retail prices), DSP takes on increased importance. Traditionally, in ensuring that reliability is met and that an adequate demand/supply balance is maintained, much of the focus has been on the supply side. We are not concluding that this has been inefficient, but rather that a review such as this will be useful in facilitating the optimal uptake of DSP to complement supply side activities.

It will be important that any recommendations stemming from this review process do not afford DSP any type of preferential treatment and that the principle of competitive neutrality amongst all technologies (whether supply or demand side) is maintained. Further, market mechanisms are preferred to regulated structures to encourage DSP. Competition will generally deliver more efficient and innovative, customer driven outcomes than mandated requirements.

Our specific views on the main issues outlined in the Issues Paper are set out in the attached submission.

If you wish to discuss any of these issues further please do not hesitate to contact me on (02) 8345 5250 or Steve Reid on (02) 8345 5132.

Yours Sincerely,

Tim O'Grady
Head of Public Policy

1. Methodology and assessment

1.1 Measuring the benefits of DSP

Origin supports the Review's intent to promote the use of DSP up to the point where the value of reducing demand is equal to the cost of supplying an extra kWh of electricity. This, as the Issues Paper highlights should assist in ensuring an economically efficient demand/supply balance. It should be noted, however, that the ability to achieve this objective is contingent on accurately measuring the benefits of DSP.

Not all forms of DSP are equal and certain types of DSP (energy efficiency for example) are sometimes difficult to measure and verify. This is not to say that this issue is insurmountable, we note that some of the state based energy efficiency schemes utilise standardised factors to account for the uncertainty surrounding the uptake of particular energy efficiency activities.

In the case of smart meters, counterfactual assessments can prove challenging - demonstrating the benefits of the AMI roll out in Victoria has been notoriously difficult to measure in an objective and credible way.

The benefits of other types of DSP, however, such as co-generation are easier to measure. Cogeneration can have a consistent effect on reducing peak demand by a particular quantum (e.g. MW). Measuring this is relatively straight forward given that the plant is directly metered. Quantifying the benefits of this type of DSP could be calculated as the avoided cost to customers of deferring network infrastructure. For example a demand constrained area could require a substation upgrade; however by installing a cogeneration plant, this could be deferred for a number of years. The benefit in this instance would be the avoidance of the payment of the regulated return (over the deferral period) that the network company would have charged for upgrading the substation.

Despite the simplicity of the above stylised example, Origin notes that for distributed generation (DG) generally, the ability to secure avoided DUOS and TUOS payments from network companies can prove challenging. We expand on this issue later in this submission.

1.2 Other issues that should be considered in the assessment process

Origin recommends that the AEMC incorporate the results of DSP initiatives previously undertaken, where relevant. For example, the various trials undertaken by the New South Wales distribution businesses and the Solar Cities Program have included the use of smart meters, various pricing options, Solar PV systems and in home displays.

2. Consumer participation and DSP Opportunities

2.1 Drivers for consumers to change consumption patterns

Historically, electricity prices in Australia have been relatively low, however, if the trend of higher prices continues it is anticipated that this will correspond to greater levels of demand side activity. Origin therefore agrees with the AEMC's comments on page 23 of the Issues Paper, where it is suggested that consumers will seek out innovative solutions

that will reduce the cost of energy as price increases. For evidence of customer responses to changes in energy prices, there are examples of average demand for certain customer segments decreasing in recent years, even though peak demand continues to rise.

Speaking to our experience with selling to business customers, a cost savings (i.e. reduced electricity bill) is not as attractive as new revenue. So, ideally DSP options would be commoditized to units (e.g. kWh) and customers given an explicit payment for the avoided network costs associated with any kWh they avoided using. Since the time at which the DSP occurs is also very important ideally a designation of kWh_{peak} or $kWh_{off\text{-}peak}$ would be used (Potentially there could be further designations like super-peak, etc.).

3. The Market and DSP

3.1 Market conditions necessary for efficient DSP

To promote customer take up of cost effective DSP, customers need to be able to answer the question "what's in it for me?" Customers need to see the value for them from DSP. To inform their answer, they need access to transparent, clear and concise information that is targeted to the audience. This is important given that different customer classes will value DSP differently. Product information including price and conditions need to be in a form that is readily accessible. Price transparency and cost-reflective tariffs are therefore crucial. The more effectively retailers can communicate with customers on the "value proposition" for them, the higher the uptake of DSP.

Market flexibility provides retailers and other suppliers with incentives to develop innovative solutions and DSP products. Placing obligations on retailers or other participants to deliver DSP targets is unnecessary and less desirable than letting the market source and deliver efficient levels of DSP itself.

Specifically some of the market conditions necessary to maximise the benefits of DSP include:

- The ability for customers to choose different pricing structures to take advantage of load shifting opportunities, reducing wholesale market risks and addressing network constraints. While this is a market condition, it is heavily dependent on regulatory conditions that support industry innovation in establishing appropriate pricing for end-use consumers.

- Smart meters and related infrastructure are necessary to measure consumption at intervals that align with wholesale market outcomes and time of network constraint. Smart meters also support home area networks, providing customers with the information and tools to control their level of consumption. Coupled with cost reflective pricing, smart meters are effective tools that influence changes in consumer behaviour.

- Smart energy devices that operate in concert with a smart meter will greatly increase the DSP benefits to consumers. These include smart appliances, in home displays and internet-linked information portals, smart plugs and thermostats and other devices that integrate distributed generation (for example solar photovoltaic systems), electric vehicles and energy storage.

Given that the market for these new products is in its infancy, a light-handed approach to oversight may be warranted. This will allow consumers themselves to adopt solutions and products that best suit their individual circumstances, while encouraging innovation amongst suppliers.

3.2 Pricing issues

3.2.1 Retail tariffs

In some instances retail tariffs often do not reflect precisely, the costs faced by retailers for supplying electricity to consumers. The basis of this differential is as a result of:

- Retail price regulation
  The postage stamp (average pricing) structure of the regulated retail tariff dampens the price signal to consumers, effectively acting as a disincentive to initiate DSP responses. Average price ceilings created by regulated tariffs ignore the pattern of use and the level of consumption of individual customers. This also creates disincentives for retailers and distributors to determine alternative price structures that may benefit both consumers and industry.

- Metering
  The simple flat tariff structure most commonly applicable to small electricity customers is also a function of accumulation meter technology. The inability to measure electricity at intervals that match wholesale market and network requirements results in flat or block-tariff structures. With the exception of controlled/dedicated load customers, the sending of cost-reflective price signals is limited with such technology in place. The efficient roll out of smart meters is therefore an important facet in ensuring cost reflective pricing. Origin has consistently advocated for the contestable roll out of smart meters as opposed to the mandated approach in Victoria.

3.2.2 Required changes to retail tariffs

In the first instance, the removal of price regulation where competition is deemed effective would eliminate the need to change the regulatory regime, since competitive outcomes will determine prices that facilitate DSP where other market and regulatory conditions are met.

Where price regulation remains in place, there is limited benefit for distribution businesses developing new pricing structures (dynamic peak pricing, time of use etc) to facilitate the take-up of DSP, if retailers are simultaneously prevented from incorporating these structures into tariffs due to the nature of retail price regulation. Therefore where regulation exists, regulators must strive for cost reflectivity by referencing the regulated price to market based pricing.

Reassignment to a new regulated tariff due to an event (such as a meter exchange or replacement) should provide an opportunity for cost-reflective pricing to be provided to customers when such events take place.

Origin notes that a number of trials are currently underway, designed to increase consumer, industry and government understanding of the impact of pricing structures enabled by interval meters (for example, Smart Grid-Smart Cities, the various Solar Cities

projects and so on). Controversy in Victoria over some proposed network tariff pricing structures in 2010 led to a postponement of price structures enabled through the Advanced Metering Infrastructure roll out. The difficulties encountered in Victoria with the reassignment of customers from a simple tariff structure to a more detailed structure (albeit with a greater level of cost reflectivity) serve as a lesson for future endeavours. That is, market driven initiatives that give customers the right to choose are likely to be more effective than mandated approaches.

3.2.3 Network charges

Transparent transmission charges are important for a range of network customers, including retailers and embedded generators. More cost reflective network charges for distribution connected customers and generators can improve their network usage profiles and locational decisions. From the perspective of embedded generators, this can be particularly significant. To the extent network charges are sufficiently flexible to reflect the true value of use (e.g. including payment for avoided or deferred network investment) for different types of users, they could facilitate the efficient take up of DSP.

From the perspective of mass market electricity consumers, however, transmission costs comprise a small proportion of the final delivered price. Developing cost reflective prices involves a trade off between economic efficiency and increased complexity. Therefore, it may be that cost reflective network charges are more applicable to certain types of customer; for example, embedded generators and larger customers as opposed to mass market. Origin therefore supports cost reflective network charges where there is an appropriate balance between the prospective efficiencies and the implementation costs.

Regarding distribution, there is a widely held view that current pricing does not reflect the value of the use of the distribution network. This is due to growth in peak demand with stagnant (or even negative) growth in average energy distributed. Network tariffs (like retail tariffs) reflect historic flat or block pricing structures. These structures are unlikely to remain cost reflective as peak demand continues to rise, reflecting capacity rather than energy constraints on the distribution network.

3.2.4 Customers and cost reflective pricing

As discussed previously, Origin supports any moves that improve cost reflectivity of prices to customers. In a retail market not subject to price regulation, competition between suppliers and preferences of customers should determine efficient outcomes and meet the needs of varying customer segments, including vulnerable customers. With full cost-reflective pricing, there will always be consumers who are better off and others worse off with no demand response.

Origin considers that any decision to subsidise consumers for the impact of cost reflective pricing should not be delivered through prices to consumers but rather through direct government support via pensions or community service obligations. Origin and other market participants have undertaken research into the impact of cost-reflective prices, likely to encourage the adoption of DSP measure on vulnerable customers. The results of this research have generally confirmed that the cost of cross-subsidies is often borne by non-peaky vulnerable customers.

3.3 Information

3.3.1 Arrangements to improve delivery of information to customers

There is significant scope to improve the quality and quantity of consumption information to consumers, including at the appliance level. Smart plugs and thermostats, wirelessly communicating through the internet or a smart meter communications system can be used to measure and control loads on specific appliances. The Australian standards and the use of ZigBee wireless communication radios in meters and devices will facilitate this.

3.4 Pricing options, products and consumer incentives

3.4.1 Retailer business model and DSP

Origin believes it is in the interests of both retailers and distributors to develop market and system approaches that support the take up of DSP by consumers. For retailers, DSP offers the opportunity to diversify into new products (distributed generation, home area networks and electric vehicles), aggregate load response for wholesale market purposes and build their relationship with their consumers. Retailers will continue to adapt their business models and strategies to facilitate the uptake of DSP.

3.5 Regulatory arrangements and DSP incentives

Currently network companies have limited incentive to undertake DSP as this could have an adverse impact on their profitability. Origin notes, however, that the recent Ministerial Council on Energy (MCE) initiated Rule change proposals could assist in addressing this issue. In particular the proposed changes to the Efficient Benefit Sharing Scheme and the Demand Management Incentive Scheme should help diminish the disincentive for network companies to allocate expenditure to demand side activities.

The outstanding concerns surrounding the treatment of avoided TUOS/DUOS payments for distributed generation (DG), however, still remain. These payments should reflect the benefit DG provides to the transmission and distribution system through the avoidance of network augmentation, and are an important source of revenue for DG and can prove critical to the economics of potential projects.

The negotiation of these payments has long been an area of concern for DG, to the extent that there are challenges regarding their calculation, and that there is often disagreement on the quantum. Under most circumstances this could be left up to normal commercial negotiations. However, there is an inherent imbalance in the negotiation position of monopoly network companies and DG. Origin notes that the AEMC in the earlier stages of this review conceded that it was possible that network companies have a stronger negotiation position relative to DG. Despite this, the AEMC concluded that in the absence of evidence to suggest that this imbalance is significant, that such negotiations should proceed without regulatory oversight.

Origin considers, however, that as part of this review, the AEMC investigate whether an explicit methodology for the determination of avoided TUOS/DUOS charges and deferred augmentation payments needs to be developed to ensure the equitable and efficient allocation of these monies.

4. Energy efficiency measures and policies

4.1 Energy efficiency as DSP options

The ability to manage rising peak demand has been recognised as an important policy priority as part of the overall effort in maintaining a reliable electricity supply. Energy efficiency and the lowering of energy consumption are most effective where it results in load shifting (lowering of peak demand). This would result in a reduction in required network augmentation and subsequent savings for consumers.

General synergies between energy efficiency and DSP

In response to this Issues Paper, it is useful therefore to begin to identify the aspects of DSP that have potential synergies with energy efficiency, in other words where it is possible to change both when we use energy and how much we use.

Examples of potential synergies between DSP and energy efficiency include:

- Deployment of energy efficiency technologies – including smart appliances during peak demand periods.

- Matching load shifting to fuel switching & the efficient production of energy. Fuel switching, that results from changes in time of use – even if the intention is only to shift load - can result in system-wide changes to energy efficiency due to changes in relative upstream/production efficiency of different fuel sources. Furthermore, smart grids can enable this to be accelerated – it is foreseeable for example that 'smart policies' could be sent through the meter to provide a signal that enables customers to intentionally link their load shifting activity (e.g. time they wash the dishes, EV's) to energy that has been produced efficiently (e.g. gas, CHP).

- Technically enabling increased penetration of distributed generation, which itself can be an efficient source of generation (e.g. CHP has 80% efficiency). The smart grid and the AMI smart meter roll-out across Australia will potentially enable direct control of multiple sites of distributed generation thereby technically enabling the grid to better 'absorb' the variability of distributed generation than would otherwise be the case.

- Smart meters and in-home displays that have the potential to reduce price inelasticity, currently a key barrier to energy efficiency. Energy price inelasticity is a barrier to the uptake of energy efficiency. Energy is price inelastic in part due to low cost of energy, but also due to the time delay between a potential (energy efficiency related) behaviour change by the end user and the time they pay their bill. Smart meters with real time pricing and information have a potential to change this.

- TOU pricing has the potential to promote not just a change in the time of use of energy, but also energy efficiency and conservation.

So, while it is clear that potential synergies between DSP, energy efficiency and smart energy technologies exist, their uptake is not a given. One obvious barrier to their uptake is lack of information and understanding of the opportunity.

Specific synergies between retailer energy efficiency obligations and DSP

Retailer energy efficiency obligations can provide financial support for DSP wherever the DSP in question is also a form of energy efficiency that is compliant with the rules for certificate creation. On these occasions (the 'sweet spot' between DSP and EE) retailer obligations can assist in overcome some barriers to DSP uptake, such as up front capital expenditure. It is foreseeable for example that co-generation could be eligible to create energy efficiency certificates under a retailer obligation, while at the same time being a form of DSP. The extent to which this would occur depends on the cost effectiveness of co-generation as a source of energy saving in comparison with other energy efficiency projects competing for certificate creation.

However, retailer obligations - be they the existing state schemes or a potential future scheme - are market distortions and are therefore by design short term measures to overcome barriers to energy efficiency. They are intended to be phased out over time, for example when a mature carbon price exists or when barriers to energy efficiency uptake can be established to have been successfully removed.

Retailer obligations should not therefore substitute in any way the appropriate removal of regulatory barriers to DSP (including energy efficiency), which constitutes the important and more permanent solution. However, the impact of retailer obligations – and their overlap with DSP as described above- should be considered when assessing short term regulatory options.

4.2 The value of energy efficiency as a form of DSP

One advantage of energy efficiency is that it is amongst the least expensive forms of demand reduction and can usually be implemented quickly. A limitation however is that it can be tricky to verify because you can't measure the reduction directly like you can for example with a solar system and sometimes it can be masked by operational changes. Any program that is implemented would need to be narrowly focused on specific items that have a very well studied change in energy usage and are unlikely to be affected by operational changes (like lighting).

While retailer obligations provide an interim solution, probably the most effective way to promote energy efficiency is to provide tariff costs that have great spreads between peak and off-peak charges, along with demand charges that have a peak, off-peak difference in cost too. Also instead of only having peak-off peak super-peak charges for the times when systems are most constrained should be introduced.

It is often difficult for consumers to know what their tariff charges are and how they vary over time. This is largely due to the fact that tariff structures vary so much from region to region. A consistent tariff structures for things like peak, off-peak, super-peak, times and consistent demand tariff structures should be created.

4.3 Energy efficiency schemes and DSP

Retailer obligation schemes such as those run in NSW and Victoria are only as good as the incentives they offer. As indicated earlier, business usually won't implement projects with paybacks greater than 3-4 years so the incentives should bring the paybacks to these levels.

Due to market competition in the creation of energy efficiency certificates, retailer obligations that are tradeable with a centralised exchange (such as the Victorian and NSW schemes) ensure that consumers are using lowest cost energy efficiency products and services.

Significant inefficiencies exist in the current situation of separate state schemes, with no financial or environmental benefit.

Origin therefore recommends harmonising existing state energy efficiency schemes into a single national Energy Saving Initiative (ESI) to drive general demand reduction. Origin recommends that a national ESI be tradeable with a centralised exchange to ensure transparency and reduce costs. Retailers should be obligated parties, as competition between retailers will encourage ESI targets to be met more cost-effectively; retailers also have the trading capacity and customer relationship.