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Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Project Number EPR 0022

www.aemc.gov.au

To Whom This May Concern

AEMC Issues paper – Power of choice – giving consumers options in the way they use electricity

Essential Energy appreciates the opportunity to respond the Australian Energy Market Commission's (AEMC's) issues paper on *Power of choice – giving consumers options in the way they use electricity*.

Attached to this cover letter is Essential Energy's response to the AEMC's questions.

Essential Energy would be pleased to discuss this matter further. Should you require further information or clarification please feel free to contact Natalie Lindsay, General Manager Regulatory Strategy and Compliance, on 02 6589 8419.

Yours sincerely

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Essential Energy's specific response to the AEMC issue paper:

Power of Choice – giving consumers options in the way they use electricity

Project Number EPR 0022

Response to the AEMC issue paper: Power of Choice
26 August 2011
Prepared by: Essential Energy

Contents

Overview

Essential Energy is pleased to provide a response to the Australian Energy Market Commission (AEMC) *Issues paper, Power of choice – giving customers options in the way they use electricity* (The Issues paper).

Essential Energy is a New South Wales (NSW) Government-owned Distribution Network Service Provider (DNSP), with responsibility for building, operating and maintaining Australia's largest electricity network - delivering network services to more than 800,000 homes and businesses across 95 per cent of NSW, parts of southern Queensland and northern Victoria.

Essential Energy agrees with the approach outlined by the AEMC in the Issues Paper. An analysis and assessment of the electricity supply chain and its interaction and relationship to demand side participation (DSP) options, issues and solutions is an important step in removing some of the barriers and disincentives that exist in achieving effective facilitation of DSP options.

Incentives play an important role in changing the behaviour of customers, but also market participants. Sectors of the electricity market may not be incentivised to undertake DSP activities, despite willingness to trial and test new technologies. This may be due to the structure of the electricity market and the relative segregation of the electricity supply chain.

From a DNSP's view point, market conditions required to facilitate and promote take-up of DSP include uninterrupted and clear price signals, information provision and recognition of DSP solutions that may be available.

DNSP's relying on network-based price signals to flow to the market via retailers is not necessarily effective or efficient. It results in a significant level of uncertainty around whether those price signals reach the market, and in anticipating the effects on demand of those signals, as the link between cause and effect is not intact. The ability of the DNSP to forecast effects on demand is required for effective network planning.

Our submission responds to each of the questions outlined in the Issue Paper, specifically addressing methodology and assessment, consumer participation and DSP opportunities, market conditions, market and regulatory arrangements and energy efficiency measures and policies. Essential Energy would be pleased to discuss our submission in further detail.

Methodology and Assessment

1.	Chapter 3 outlines our approach to identifying "market and regulatory arrangements that enable the participation of both supply and demand side options in achieving an economically efficient demand/supply balance on the electricity market." Do you agree with our approach?

Essential Energy agrees with the approach outlined in the Issues Paper. It is important to ensure that the review works under a broad focus so whole of market issues and benefits can be assessed. Participation of both supply and demand side options is problematic at times due to competing interests of market participants, the structure of the market (which can encourage a "silo" approach to activities) and a lack of incentives.

2.	How should the benefits of DSP be measured? Can they be accurately quantified?

The desired outcome of DSP, from a DNSP perspective, is more effective utilisation of assets as measured by load factor at various levels of the network.

Post-implementation, benefits of DSP could be measured by monitoring demand before and after the introduction of DSP options. An effective DSP option would see a lowering of demand in the time period that has been targeted or improvements in load factor at various levels of the network.

To quantify benefits from DSP detailed information would generally be available down to feeder level, at larger distribution substations and for major customers with interval metering. To quantify changes to smaller customers interval metering would need to be installed (and programmed accordingly).

DSP benefits are more difficult to assess pre-implementation. Analysis and quantification of benefits in these circumstances can become problematic due to reliance on assumptions and modelling. The AEMC's approach of drawing upon previous bodies of work and studies is a sensible first step. An information gathering process may be of benefit in identifying DSP options that have been trialled or deployed into the National Electricity Market with a view to assess the impacts, success or failure these may have generated.

3.	What are appropriate discount rates to apply to DSP investments for the various parties across the supply chain?

The value of DSP, to a DNSP, will ultimately be measured against the long run marginal cost to provide demand capacity.

To encourage DSP investment the discount rates used should provide for a higher rate of return. For example, this may involve using a higher discount rate for DSP costs and/or a lower discount rate for DSP benefits relative to investment in supply capacity increases.

4. Are there other issues which we should consider in our assessment process and criteria

Incentives play an important role in changing the behaviour of customers, but also market participants. Sectors of the electricity market may not be incentivised to undertake DSP activities, despite willingness to trial and test new technologies. This may be due to the structure of the electricity market and the relative segregation of the electricity supply chain. For example, an individual market participant may be interested in trialling or implementing a DSP initiative. The cost benefit of a particular initiative may not stack up from an internal view point despite it having a highly positive impact on a whole of supply chain perspective. The structure of the market and the barriers this can present to DSP requires consideration.

Consumer participation and DSP opportunities

5.	What are considered the drivers behind why consumers may choose to change their electricity consumption patterns? Please provide examples or evidence where appropriate.

Changes in electricity consumption patterns are dependent on the intersection between convenience, cost/price and perceived result/benefit, with the degree of influence of each variable being dependent on the characteristics of the individual customer.

Convenience is about limiting the effort required by the consumer to change behaviour. Customers are looking to 'set-and-forget'. This is largely dependent on the availability of technology including more efficient appliances, improved building standards, as well as, tools and devices in the home. They are also expecting limited impact on their lifestyle and comfort.

Cost/price refers to the financial implications of electricity consumption decisions. These are affected by retail pricing, the provision of incentives/rebates either for directly changing consumption patterns or for acquiring technology that assists in changing consumption patterns, and the cost of that technology.

Result refers to both the degree and the nature of the benefits of behavioural change. The degree of the benefit needs to be sufficient to overcome any downside in convenience and cost. The nature of the result sought might be an improved financial position, perceived contribution to conserving natural resources, improved system reliability or energy independence.

The assessment by the customer of the three variables is dependent on their depth of knowledge of each, and so general consumer energy literacy education, along with specific product and service information, real-time consumption information, and energy efficiency and energy conservation education is required.

Previous research based on surveys taken across national electricity market jurisdictions indicates that, individual, education, income, household size and age are commonly the most powerful demographic variables affecting intention to reduce electricity consumption; acceptance of demand management technology and acceptance of distributed generation technology[1]. Specifically younger, more educated working people with moderate size households including children; and higher income levels, were more likely to accept technologies.

Beliefs about the environment, economic values, attitudes towards consumption and subjective norms about consumption typically also showed significant positive relationships with intentions to reduce energy consumption and adopt demand management and distributed generation technologies. However high scores for knowledge of energy and the environment through self-assessment saw a polarisation of people's attitudes towards reducing consumption[2]

[1] Gardner, J., Ashworth, P., (2007). Public Attitudes toward Electricity Alternatives: Results from a Survey of Australian Householders. P2008/944 available at <http://nsw-rp-41.csiro.au/files/files/pj36.pdf>

[2] Ibid.

Motivation for early adoption of distributed energy (the suite of distributed generation; demand management; and energy efficiency) appear to be self-sufficiency and energy-independence, that is the feeling that an individual is not dependant on others for their energy; the opportunity to demonstrate environmental values in consumption choices; and the prospect of catalysing social change through political statements which challenge dominant assumptions.

6.	Chapter 4 lists some plausible DSP options that are currently used or could be used by consumers. Are there any other plausible DSP options currently used by consumers that have not been identified? Please provide description of measures and examples, where available.

Another plausible DSP option is the use of Power factor correction equipment which provides demand reductions. Power factor correction equipment is commonly used by larger customers who are connected to kVA demand tariffs. For example at 0.9 power factor, 1 kVAr of correction provides a demand reduction of 0.43 kVA. A secondary benefit is a reduction in line losses.

7.	Are there any DSP options that are currently available to consumers, but are not commonly used? If so, what are they, and why are they not commonly used (i.e. what are the barriers to their uptake)? Please provide examples and evidence if available.

Small scale energy storage is a DSP option that is currently available, but not commonly used. Improvements and decreasing unit costs in small scale energy storage with power electronics and battery technologies is likely to become cost effective relative to rising retail energy costs. Unit costs of $300 per kVA and $200 per kWh are projected for the short to medium term.

The current unit cost is the main barrier to the uptake of small scale energy storage. Other barriers to the uptake of this technology include the form of time of use retail pricing and the lack of accurate reflection of energy and capacity costs across the whole supply chain. Historically, time of use prices have been a fairly blunt instrument, charging a rate for peak, shoulder and off peak regardless of season. Current time of use pricing does not accurately reflect the costs to the network. Peaks occur at different times throughout the year (summer versus winter) and at specific locations. The current structure of the market, including the metering stock deployed throughout the network, limits pricing options and how pricing options are passed through to customers.

8.	Are there other DSP options that are not currently available to consumers, but could be available if currently available technologies, processes or information were employed (or employed more effectively) in the electricity (or a related) market?

DSP options at a consumer level which are not widely understood or used include cost reflective pricing and education.

True cost reflective pricing at an individual customer level would provide direct incentives to customers to change behaviour. However, cost reflective pricing can cause many issues from a customer's perspective if education is not included as part of the pricing package.

To utilise cost reflective pricing interval metering will be required to measure the level of DSP provided. The intelligent meters and associated communications infrastructure would enable real time information on energy cost to be provided to the consumer and guide decision making on energy use through intelligent appliances, home energy controllers and home area networks.

Market conditions required for efficient DSP outcomes

9.	What are considered the relevant market conditions to facilitate and promote consumer take up of cost effective DSP?

From a DNSP's view point, market conditions required to facilitate and promote take-up of DSP include uninterrupted and clear price signals, information provision and recognition of DSP solutions that may be available.

DNSP's relying on network-based price signals to flow to the market via retailers is not necessarily effective or efficient. It results in a significant level of uncertainty around whether those price signals reach the market, and in anticipating the effects on demand of those signals, as the link between cause and effect is not intact. The ability of the DNSP to forecast effects on demand is required for effective network planning.

Different options may be available to ensure price signals reach the market. One option is provision of direct financial rewards to customers from DNSPs. Direct financial rewards could provide incentives to customers to change behaviour in locations where network constraints exist or during network peaks. Strong customer behavioural change may be an alternative to network infrastructure investment.

Another option worthy of consideration is pricing based on demand (kVA) rather than consumption (kWh). Demand based pricing is not typically used for small customers, despite the fact that demand is a key driver of costs for a DNSP.

To facilitate conservation and demand shifting and provide some certainty around the effect on demand of network-based price signals, DNSPs would be ideally able to provide customers with information, tools and devices including load control devices.

With regard to information provision, customers need to understand the components of prices, such as generation, network and retail, and the drivers and influencers of each of these in order for them to be receptive to responding appropriately to them. This idea supports separate and distinct price signals for each component based on specific and unique drivers, objectives and parameters

The Issues Paper highlights that network businesses may contract with a DSP provider rather than be directly involved with customers. It is important to note that, in the future, ample opportunity exists for a distribution network service provider to provide DSP services directly to customers, particularly with the advent of smart grids. The supply chain for the provision of DSP products and services may be different to the supply chain for the provision of electricity.

Consideration should be given to the nature of the market conditions that might evolve and their implications on the effectiveness and cost of DSP when the intermediaries – retailers – are also in a position to influence the supply side of equation by virtue of them being vertically integrated.

10. Are there any specific market conditions which may need to be in place to enable third parties to facilitate consumer decision making and capture the value of flexible demand? Please provide examples and evidence as appropriate.

To enable third parties to facilitate consumer decision making and capture the value of flexible demand the creation of a new role in the market for the Customer Function Service Provider needs to be considered as part of the overall demand side participation program. This recognises the need for responsibility to be assigned to a single party to manage the multiple access points for each National Meter Identifier (NMI) for information and technology for DSP programs to be effective. This role has been explored within the National Smart Metering Program.

11. What market conditions (technologies, processes, tariff structures, information etc) are needed, that are not currently employed in the electricity market, to make other DSP options available to consumers?

Market conditions are clearly an important part in making DSP options available to consumers. Aspects of the current electricity market, at times, act as a disincentive or are problematic with respect to making DSP options available. Aside from disincentives, there are also opportunities which should be considered such as new markets and new technologies.

Generally, there is a disincentive for DNSPs to undertake or support DSP options, if the DSP option results in a loss of revenue due to less electricity consumption. NSW DNSPs revenues are regulated under a weighted average price cap, so a reduction in consumption that was not known at the time the price path was established, directly reduces revenues. This disincentive can be countered through pricing mechanisms, like the D-Factor available to DNSPs in NSW. Such mechanisms must seek to ensure that the requirements and rules around the use of the mechanism, does not limit its scope or applicability to the extent possible.

Aside from revenue issues and the disincentives these can create, pricing options can also meet challenges. For example, the current structure of the market can limit DSP options. A rebate mechanism to reward customers who contribute to overall demand reductions could be introduced, possibly based on load factor relative to peak coincident load and an ability to postage stamp rebates for localised supply chain constraints. Currently there is no clear mechanism to capture customer rebates or rewards within a DNSPs pricing proposal or how such expenditure should be treated.

Encouragement of DSP options could be through a "Negawatt"[3] market for major customers and aggregators to bid load reductions and distributed energy, including energy storage, into the market on similar terms to generation.

Technology provides and important avenue to make DSP options available to customers in the future. Real time feedback of pricing for generation and supply chain critical peaks provides opportunities for customers to respond and make decisions around energy use.

[3] A "negawatt" is in essence a negative megawatt, in that it is a megawatt of power that was not required to be produced or expended

12. Do you consider retail tariffs currently reflect the costs to a retailer of supplying consumers with electricity?
13. Are any changes needed to retail price regulation to facilitate and promote take up of DSP?
14. Do the charges to retailers for use of transmission networks reflect the value of that use?

The final retail tariff visible to a customer contains many cost components covering the electricity supply chain. Given the structure of a retail price and competing priorities in terms of price signals, price signals from different components of the supply chain can be dampened or disappear.

As discussed above, DNSPs relying on network-based price signals to flow to the market via retailers is not necessarily effective or efficient.

15. Do the charges to retailers for use of distribution networks reflect the value of that use?

The charges to retailers only reflect the use of a distribution network to the extent that the network tariff has been priced to reflect the cost of supplying the customer. This is only done at the customer level for very large customers on site specific prices. For smaller customers connected to remaining network tariffs, the cost of supplying a customer class is spread equally among all the customers in the class depending on their usage and, for some larger customers, their demand. This is in effect providing a form of cross subsidisation within each customer class.

The true driver of costs to a network is demand. If the technology was available and deployed into the network to provide customers with the cost at any point in time of their demand on the network, demand based pricing signals could be implemented. However, this concept is not an easy one for most small customers to understand and react to. Time of use pricing is a surrogate for demand charges for small customers and provides customers with a form of price signal. However the peak times for the network may not always be the same as the peak times for a retailer purchasing energy and therefore passing through competing price signals to small customers who are connected to bundled tariffs is problematic.

16.	Do all consumer groups, including vulnerable consumers benefit from having cost reflective prices in place? If not, are any special provisions required to protect certain classes of consumers?

Studies have shown that "low income customers are responsive to dynamic rates and that many such customers can benefit even without shifting load."[4]

However, even if all customer groups benefit, not all individual customers will benefit and so "safety nets" may need to be established. "One way of doing this is to establish forms of 'Safety Nets' for this segment of society. Example measures could include:

- Peak tariff discounts
- "Energy Literacy" programs
- In-language and visual tools
- Appliance efficiency programs
- Managed payment schemes
- Government rebates and subsidies

It is also advantageous to explain the benefits of Smart Grids for low income groups. For example Smart grids could assist with prepaid services (for instance, offering a 5 per cent discount) and with other facilities that would make it possible to disconnect and reconnect without the extra connection charge. In fact this is often the main reason that people find it even more difficult to reconnect – it simply becomes unaffordable."[5]

17.	To what extent do consumers understand how they can reduce their electricity bill? What information do consumers need in order to increase their understanding of how they can reduce and manage their electricity consumption and hence bills?

Many consumers believe they have done all they can with regard to being energy efficient. Other customers, while believing themselves to be knowledgeable about what they could do, don't do it due to them perceiving the required actions to be inconvenient or negatively impacting on their lifestyle compared to the benefits that would ensue. Few consumers understand the possibilities for managing electricity consumption and costs offered by smart grids.

Consumers may benefit from ready access to real-time consumption information relating to current demand in kW, consumption in kWh broken down by time intervals, and associated cost information, both at a household and appliance level. To capitalise on access to information, customers need to be energy literate in terms of having an appreciation of the size of these values in much the same way that people, generally, have an appreciation of the size of other units of measure such as kilometres, kilometres per hour, kilograms, litres. They need to be able to disassociate consumption in kWh from cost, so they can appreciate that a reduction in kWh will lead to bills being lower

[4] (Faruqui, Sergici and Palmer, 2010, *The Impact of Dynamic Pricing on Low Income Customers*, prepared for Edison Foundation's Institute of Electric Efficiency, viewed 10 August 2011, http://www.edisonfoundation.net/iee/reports/IEE_LowIncomeDynamicPricing_0610.pdf

[5] Smart Grid Australia (2011) Maximising Consumer Benefits, viewed 23 August 2011, http://www.smartgridaustralia.com.au/SGA/Working_Groups/SGA/5_Working_Groups/Working_Groups.aspx?hkey=71a48278-bdd9-4f68-ab74-0a0a4de5dc8a

than they might otherwise have been, even if prices are rising. Their attention needs to be drawn to various aspects of their consumption for further consideration, such as their household's baseload and peak. It may also be of benefit for them to be aware of how their household's consumption compares to similar households.

18. What issues are associated with provision of existing information in the market? Are there arrangements that could improve delivery of such information? If so, how and by whom?

Consumers, particularly households, are sceptical of the motives of energy providers in providing information, products and services to assist them in reducing consumption/costs based on the traditional notion that companies are always looking to sell more 'product'. This view applies more to retailers than network businesses. It is easier to explain the drivers for network businesses to reduce consumption than it is for retailers.[6]

The amount of information available to be provided and the efficiency of providing that information have the potential to increase as a result of the advent of smart grids. One means for facilitating the dissemination of information and innovation with regard to DSP products and services is to develop a central repository to capture information collected by smart meters and allow multi-party access to that information (with the approval of the customer and appropriate security and privacy provisions) for the purposes of providing DSP products and services, along the lines of the Smart Meter Texas Portal in the USA.[7]

19. Could better information be provided to consumers regarding the actual consumption of individual appliances and pieces of equipment? If so, what information could be provided and in what form?

As discussed above, better information can be provided to customers through smart grids and complementary technology. These emerging (and immature) technologies make this possible by way of smart plugs, web portals and in-home displays.

20. Are retailer and distributor business models supportive of DSP?

At present retailer and distributor models are generally not supportive of DSP. Participation in DSP can be problematic at times due to competing interests of market participants, the structure of the market (which can encourage a "silo" approach to activities) and a lack of incentives. Further, DNSPs relying on network-based price signals to flow to the market via retailers is not necessarily effective or efficient, as discussed above.

To achieve better outcomes retailers and distribution businesses will need to work collaboratively to promote DSP options as they become available. Collaboration can be achieved through development of market mechanisms and incentives.

[6] CSIRO, June 2011, Essential Energy Intelligent Network Community Trial – Final Working Draft
[7] Ref https://www.smartmetertexas.com/CAP/public/

21. What incentives are likely to encourage research and development of other parties to promote efficient DSP?

There are many examples within Australia and internationally, of incentives that promote efficient DSP. These examples should be analysed and compared to ascertain suitable mechanisms to be deployed or tested within the national electricity market. Careful consideration should also be given to the design of incentives, with particular focus placed on incentives that provide stability and certainty in the longer term to ensure investment can be attracted.

22. Are there any regulatory, cultural or organisational barriers that affect take up of DSP opportunities?

Customers are interested in reducing consumption (kWh), while DNSPs and retailers want to shift/manage the peak (kW). These inconsistent drivers/objectives impact on the development of DSP opportunities.

As discussed above, there are also inconsistencies in the drivers/parameters for DSP opportunities between DNSPs and retailers which limit cooperation in the development of DSP opportunities. In addition, the supply chain for the provision of DSP opportunities might be different to the supply chain for electricity itself, with the prospect that DNSPs and retailers could find themselves acting in competition in future.

DNSPS and retailers revenue is largely derived from kWh of electricity consumed, so DSP programs that reduce kWh negatively impact on revenue, and are therefore less likely to be developed and promoted.

Development of new DNSP opportunities requires innovation, but the electricity industry is not known for its agility and inventiveness, because of the lack of appropriate incentives.

23. What form of commercial contacts/clauses are required for facilitating and promoting efficient DSP?

Essential Energy is not aware of any additional commercial contracts/clauses required for facilitating and promoting efficient DSP.

24. Are there specific issues associated with investment in infrastructure needed for consumers to take up DSP opportunities?

Investment in infrastructure is currently orientated towards traditional methods of constructing the distribution systems that is a one way flow of electricity. However, as incentives, new technologies and changes to licence arrangements alter, businesses look to the most cost effective construction methods available.

The National Electricity Rules (NER) via the Demand Management Incentive Scheme (DMIS) and the Demand Management Innovation Allowance (DMIA) enables DNSPs to

trial new technologies in conjunction with customers. However, the DMIA at this time is minimal and limits the technologies that may be trialled.

DNSP's licence arrangements may limit the businesses willingness to deviate from current practices. Essential Energy's licence conditions require the business to maintain the network within prescribed parameters, which ensure reliability and security of supply and accordingly may be penalised should these conditions be breached. Additionally the question of who pays for infrastructure should be addressed. Network prices are traditionally shared within a class of customer which enables a fair sharing of costs thus if a customer or group of customers wishes to undertake DSP is it fair to disburse this cost to all (who may not gain financially) to share the costs?

25. Do you consider that the issue of split or misaligned incentives has prevented efficient investment in DSP from taking place?

Incentives may not necessarily need to be derived from the distribution system of the electricity supply chain, they may need to be looked at from an energy efficiency perspective in that the more efficient say a building is perhaps the higher an owner's rent may be and likewise the less efficient then the lower the rent (a star rating system).

26. What are potential measures for addressing any issues associated with split or misaligned incentives?

A measure that could be used to address issues associated with split or misaligned incentives may be the introduction of DSP specific tariffs that are associated with a specific project or area that has benefited from the implementation of a DSP project. However, there may be issue associated with specific tariffs if they are not passed through, in full, via the retail tariff.

27. What are the specific issues concerning ease of access to capital for consumers and other parties?

Access to capital, particularly for small vulnerable customers, is highly problematic. Small vulnerable customers, arguably, can benefit greatly from DSP. Market mechanisms should be developed to encourage access to capital for such customers. The No Interest Loans Scheme (NILS) which is available to a limited number of customers in sections of New South Wales is an example of a low cost effective scheme. The NILS provides access to capital for small vulnerable customers to replace old appliances with new energy and water efficient appliances.

28. What are the significant energy market challenges in optimising the value of technology and system capability to facilitate an efficient level of DSP?

A significant challenge for the energy market to facilitate an efficient level of DSP will be to establish standards that assure system interoperability throughout the energy supply chain. Decisions that are made today in terms of appropriate technology may not be the optimal technology for the future, which in turn may lead to the stranding of

infrastructure assets. The challenge for tomorrow is understanding what consumers will respond to in the future particularly in terms of lifestyle choices.

29.	Do current technology, metering and control devices support DSP? If not, why not, and what are considered some of the issues?

The roll out of more smart metering technology will support DSP initiatives, by providing greater connectivity to the home and access to information. It is important to also consider non-metering solutions as part of the overall DSP package.

For DSP to be successful all customers need to be able to get ready access to technology that facilitates DSP and information that allows the customer to have some control over energy usage. This information should include appropriate tariffs which in turn provide pricing signals to the consumer should they select an alternative tariff.

The maximising of DSP opportunities will be dependent on a broader roll out of currently available technologies such as smart metering and load control devices along with tools to educate consumers on the benefits that they might make from these technologies.

30.	How can issues relating to weak and/or split incentives be addressed to ensure that the benefits of smart grid technologies are aligned and felt across the electricity supply chain, including by consumers?

From a DNSP perspective, aspects of the NER in terms of revenue and price setting can inhibit the deployment of technologies. As discussed in the Issues Paper and above, investments for DSP options can be substantial, but the benefits can accrue to other sectors of the electricity supply chain. Consideration must be given to the current revenue and price setting arrangements with a view to identify impediments to whole of market solutions and assessment of mechanisms which encourage a "silo" approach.

31.	How can pricing signals/tariff arrangements be made complementary with smart grid technologies to facilitate efficient DSP in the NEM?

To enable pricing signals/tariff arrangements to be made complementary to smart grid technologies and facilitate efficient DSP, DNSPs could offer rebates directly to customers in exchange for direct control of energy-intensive appliances under negotiated conditions. Further, customers self-managing their peak demand (via in-home displays, web portals, load management technology) to keep it below a pre-determined threshold, could also be rewarded via a rebate. However, providing such a rebate is dependent on technology not currently deployed within the network.

With supporting technology customers would need to be able to see how much they would be saving or getting paid at any point in time by participating in DSP. In addition this saving/payment would have to be passed from the network to the customer requiring the retailer to have a direct pass through mechanism in their pricing or for the network to directly rebate the customer.

32. In maximising the value of technologies, such as smart grids for DSP, what are the issues relating to consumer protection and privacy?

Utilities are already required to protect confidential information that they store in their back office systems. While this process is well understood the management of data available from new technology might present a new opportunity for compromise.

DSP may require multiple parties to have access infrastructure to provide services and or support. Half hourly interval data provides an indication of when customers are home, the number of people in the household and the types of devices that they utilise. Control of access to this information is required under numerous National Privacy Principles. This includes controlling access to personal information stored in the systems, access to information stored in the meter and access to this information within the home.

Security and privacy need to be considered carefully as part of any broad DSP program to ensure any solutions developed to not create opportunities for compromise.

Market and regulatory arrangements

33.	To what extent do parties have appropriate incentives to put in place the systems, technologies, information flows etc that facilitate efficient DSP?

The NER and Essential Energy's current regulatory determination incentivise the business to participate in both DSP and demand management projects. It is a matter of utilising the incentive in the most cost effective manner (biggest bang for the dollar). The DMIA for this regulatory control period represents approximately 0.05% ($3mil) of allowed revenue. The approval for spending under the DMIA will be conducted ex-post by the Australian Energy Regulatory (AER) each year of the control period to ensure compliance with the DMIA criteria. As discussed above, the current DMIA is minimal which limits technologies that can be deployed. The DMIS also incorporates the D-factor discussed earlier. The D-factor provides strong incentives however the conditions of the scheme also limits technologies and solutions that can be deployed.

However as systems, technologies, information flows change and improve these incentives will need to be reviewed, both for the business and the consumer.

34.	Are there aspects of the NEL or the Rules which prevent parties taking actions that would otherwise allow for more efficient levels of DSP?

According to Clause 7.7(a) of the NER, the only persons entitled to access *energy data* or to receive *metering data, NMI Standing Data, settlements ready data* or *data from the metering register* for a *metering installation* includes:
(7) A *financially responsible Market Participant's* customer upon request by that customer to the *financially responsible Market Participant* for information relating to that customer's metering installation.

This clause may prevent DNSPs from providing data/information to customers, which in turn, limits the DNSP's ability to offer DSP products and services to customers and effectively manage demand within the constraints of the distribution network. It is important that the DNSPs have this capability given that their key driver – being managing network constraints and associated infrastructure costs – is unique to the DNSP and potentially in conflict with the drivers for other entities.

The rules should allow multi-party access to customer data (with appropriate privacy and security provisions) for the purpose of providing DSP products and services to customers.

35.	Are there market failures which mean regulation is needed in some areas to ensure appropriate market conditions are in place?

As discussed above, there are a number of areas which require attention. Additional regulation may not be required in some instances to address market failures. It may be as simple as enhancing or tweaking current arrangements.

Energy efficiency measures and policies

36.	What energy efficiency policies and schemes should be considered as part of this Review, i.e. as impacting on, or seeking to integrate with the NEM?

As discussed earlier there are many examples of energy efficiency policies within Australia and internationally which should be considered. The following local energy efficiencies schemes should be considered:

- NSW Energy Savings Scheme
- Victorian Energy Efficiency Target Scheme
- SA Residential Energy Efficiency Scheme

The above schemes focus on energy efficiency and the reduction of greenhouse gas emissions which reduce energy consumption which may in turn reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure.

37.	To what extent can energy efficiency policies and schemes be adopted as options for enhancing the efficiency of DSP in the NEM? What are the strengths and limitations of energy efficiency policies as a DSP option compared to other options?
38.	To what extent do existing retailer obligation schemes facilitate efficient choices by consumers in their electricity use? Are there aspects of those schemes that facilitate efficient consumption choices more than others? If so, please explain.

Policies and schemes should be adopted that allow DNSPs to participate in DSP on their distribution networks. Current limitations of jurisdictional policies and schemes are that they were originally intended to encourage residential and commercial/industrial customers to improve energy efficiency. DNSP activity was generally not considered during the design of policies and schemes, thus limiting incentives for DNSPs to undertake DSP.

The schemes listed above are retailer/customer interactive; the certificates created by each of the schemes are associated with energy efficiency activities rather than DSP. There is currently no direct correlation between when a certificate is issued and when the actual energy saving occurs.

The strengths of the schemes are that they create an incentive for retailers to source certificates otherwise penalties apply. However a number of weaknesses exist. The weaknesses identified below should serve as a trigger to improve and incentivise DSP options.

The schemes generally exclude major participants of the electricity supply chain for example, generators and network service providers, as the "consumer" is the designated energy saver in both NSW and VIC. They are also not inclusive of large users in peak demand periods for example no direct demand management incentives.

There is also a lack of incentives which particularly target certain sectors of consumers that may be high and inefficient users of energy. This could be addressed by introducing complimentary schemes which provide support through other funding sources for

example low-income package/incentive. Sectors where low cost energy efficiency activities are carried out may result in a lesser impact on peak demand than higher cost options with less deeming provisions.

The schemes generally target a specific function or utility of a household. There is currently little incentive for DSP service providers to target a whole residence where they may be only accredited/tasked to offer one or two products/services. Further there is little or no incentive for households (and other energy savers) to change behaviour. For activities requiring a customer contribution, due to the deeming factors and increasing energy prices there may be little reduction to the quarterly bill. For some accredited activities there may be limited opportunity to target consumers where the energy savings may be high (landlord/tenant issues especially around more costly activities).