14 September 2012

Committee Secretary

Senate Select Committee on Electricity Prices

Email: electricityprices.sen@aph.gov.au

Submission to the Senate Select Committee on Electricity Prices

Brisbane
Canberra
Melbourne
Perth
Sydney

GREAT BARRIER REEF FOUNDATION

Energetics welcomes this opportunity to make a submission to the Senate Select Committee on Electricity Prices. We are a specialist management consultancy with over 28 years experience in energy and carbon management. Energetics delivers measurable outcomes to address key business needs in areas including mitigating climate change risk, meeting compliance obligations, identifying and developing business opportunities, reducing costs and improving productivity. We have a national multi-disciplinary team of over 110 professionals in five offices across Australia.

Within our submission, we have addressed the following two components of the Committee's terms of reference:

a. legislative and regulatory arrangements and drivers in relation to network transmission and distribution investment decision making and the consequent impacts on electricity bills, and on the long term interests of consumers;

b. options to reduce peak demand and improve the productivity of the national electricity system.

Legislative and regulatory arrangements and drivers in relation to network transmission and distribution investment decision making and the consequent impacts on electricity bills, and on the long term interests of consumers

Energetics believes that the design and operational constraints on the network service providers (the networks) to meet very stringent reliability standards, coupled with their operational expertise focused on supply side rather than demand side options, means that the network operators are very reluctant to consider non-network alternative solutions when planning expansions and upgrades. Further, except for very recent times when the power prices have been rising rapidly, state and federal politicians and administrators have been more concerned about avoiding interruptions (i.e. blackouts) rather than deferring expenditure. We therefore believe that there is a need to consider implementing regulatory changes to the electricity market to incentivise

demand side participation and create a greater balance between acceptable risk of power constraints and lower network costs. The recent review by the AEMC[1] into the distribution reliability outcomes and standards in NSW may assist in this regard.

Another consideration is that projections of demand growth have been systematically overestimated over the last few years, justifying additional network infrastructure upgrades. Energetics believes that some key drivers, such as the price elasticity of demand and the impact of energy efficiency and renewable energy incentive schemes, have not been appropriately factored in these projections. This component of the network planning process deserves more scrutiny and independent reviews commissioned by the regulator. Current regulation of networks creates a bias towards investing in supply-side solutions. The regulatory revenue determination process awards higher revenue to networks with greater asset bases. In addition, there are only very limited and ineffective incentives directly targeted towards the implementation of demand-side solutions.

Options to reduce peak demand and improve the productivity of the national electricity system

We recommend the implementation of five programs to target demand reduction, as follows.

Pricing initiatives

Most domestic electricity tariffs shield consumers from the true cost using electricity during peak periods. Therefore it is no wonder that peak demand is rising especially with the ever-increasing penetration of air-conditioning systems in this segment of the market. Many jurisdictions overseas have successfully implemented time-of-use tariffs that pass cost signals onto consumers in a way that tempers the growth in peak demand. Energetics believes that similar approaches should be considered in Australia for all residential customers, together with a roll-out of smart meters and in-home displays. Beyond time-of-use tariffs, we particularly favour critical peak pricing coupled with enabling technologies allowing controlling and dispatching curtailable loads (e.g. direct load control of air-conditioning units).

We also suggest the rapid and wide-scale introduction of kVA-based demand charges for commercial and industrial customers in jurisdictions that are still only applying kW-based tariffs. Such a charge directly incentivises reductions in apparent power demand and power factor improvement.

We do not favour the trend shown over the last few years towards the application of an increasing proportion of fixed price components. We understand the interest in such tariff structures for the Network Service Providers as it provides more certainty for their revenue streams. However we believe that this removes incentives for end-users to reduce their electricity consumption and peak load. We also do not favour the application of billing capacity (demand) charges based on long-term (e.g. 12 months) capacity ratchet level to large commercial and industrial customers. We believe that

[1] AEMC 2012, Review of Distribution Reliability Outcomes and Standards, Final Report - NSW workstream, 31 August 2012, Sydney

© Energetics Pty Ltd 2012

monthly demand charges are more likely to incentivise the implementation of load management measures (e.g. load shifting).

We note that there is a reluctance to expose consumers to tariff structures that result in less resourced households being penalised. In consideration of this we note that:

1. less resourced households are currently being penalised anyway through higher prices; and
2. there are other mechanisms available to government to compensate less resourced households and these mechanisms do not lead to a distortion of the electricity market.

Commercial and industrial audit and implementation program

Energetics believes that there are many cost effective opportunities to reduce electricity demand in network areas that are subject to peak demand constraints. Examples include embedded generation, specific demand curtailment initiatives and energy efficiency measures.

Were the networks obligated to both investigate opportunities for demand reduction at all large sites within the constrained area, and to implement those measures that meet a proscribed benefit-to-cost ratio, then Australia would see more rapid uptake of demand side measures and resultant reductions in the cost to society of network expansions. All the more so, if the networks were required to fund these measures from their authorised capital expenditure caps. Energetics believes that the design of the regulatory test requirements should be much more prescriptive and rely more on the Network Service Providers identifying and aggregating opportunities with their customers rather than expecting each end-user to reply to a public consultation process. We also believe that compliance with the regulatory test requirements should be investigated by the regulator with much more scrutiny.

Target the installation of energy efficient equipment and distributed generation systems

Energy efficiency and distributed generation have a role in peak demand reduction, but measures must be targeted because of the spatial and temporal characteristics of the demand peaks. To be cost-effective, programs targeting peak demand reduction need to consider the localised nature of peak demand (i.e. it is area-specific not broad-based across a network), as well as the coincidence of the energy conservation and distribution generation measures with system peak demand and distribution area peak demand. For example, in a distribution network area dominated by commercial and industrial loads, incentivising efficient lighting in the residential sector will have no value in curtailing an afternoon summer peak for the simple reason that lights in houses will not be turned on at the time of the peak. In the same way, the installation of residential solar photovoltaics is not a cost effective solution when seeking to reduce late afternoon/early evening summer peak demand in a residential-dominated distribution network area. There is not a good coincidence between the peak generation output from solar photovoltaics systems and the late afternoon peak (around 6pm) when air-conditioners are switched on. Options such as North-West

© Energetics Pty Ltd 2012

orientation and battery storage need to be considered to improve the coincidence factor of such measures.

Notwithstanding the previous point, Energetics recommends these measures to directly target sources of peak demand growth:

- Incentivise the equipment suppliers to install highly efficient equipment. Successful examples of such programs include the Oncor Electric Installer Information and Training Market Transformation Program, PG&E's Motor and HVAC Distributor Rebate Program, SCE's Upstream HVAC Distributor Equipment Program. Such programs can transform markets to greatly increase the proportion of energy efficient equipment available, as supply-chain players directly benefit from being able to provide a premium product at a reduced cost. Such an implementation approach also greatly reduces the overall program administration costs when dealing with the residential segment of the market.

- Apply more stringent Minimum Efficiency Performance Standards to the appliances that are driving peak demand growth. Obvious candidates include residential air conditioners and commercial scale HVAC chillers.

Voluntary Demand Response

Voluntary demand response, whereby customers are paid to reduce demand during peak periods, can be highly effective at reducing peak demand and the resulting need for increased network investment. There are currently multiple barriers to the provision of demand response in the National Electricity Market (NEM), including:

1. Aggregators currently cannot directly register as market participants, and so they cannot compete directly with generators nor can they earn the market price for implementing demand response. Instead, aggregators need to go through retailers.

2. Many retailers have limited interest in demand response. In particular, the largest retailers are vertically integrated - they own generation as well as retail assets - and therefore manage their spot price risks internally.

3. Use of standby generators for demand response products is limited by high costs associated with the requirement to register each small generator separately.

4. Use of standby generators for demand response products is limited as distribution network service providers have no incentives to connect small embedded generators to their networks and as there is an absence of uniform standards and connection prices.

It is our opinion that the NEM would become attractive to greater demand response if a number of proposed changes to the National Electricity Rules (NER) were implemented, specifically:

- Creation of a new type of market participant, a "demand curtailment participant' and the introduction of demand-side bidding to the NEM.

© Energetics Pty Ltd 2012

- Unbundling of services at the connection point. This would allow more than one market participant to offer services to customers, or facilitate provision of services to the market. An increase in demand-side activities could result.
- Reduce barriers to standby generators supporting networks in times of constraints.
- Increase incentives, and reduce barriers, to network service providers for implementing demand-side projects.

We note that some of these Rule changes have been recommended by the AEMC in Power of Choice - Stage 3 DSP Review draft report. We support the AEMC recommendations and call for their speedy implementation.

In addition to the above specific programs, we recommend the following regulatory requirements and initiatives to improve the design and implementation of demand reduction programs by networks.

First, require stringent measurement and verification of the benefits of demand side response measures. The purpose is to ensure that the networks are achieving the demand reductions that they are claiming.

Secondly, require the networks (or whichever market participant is selected to implement the demand side measures) to assess measures using the Total Resource Cost (i.e. cost benefit analysis along the whole supply chain from the generators to the end-users) rather than the cost to the networks. This will show that measures implemented benefit society as a whole rather than just the networks.

And thirdly we would welcome consideration of a regulatory framework around the integration of demand side solutions into network planning. Such a framework should:

- Require each network service provider to provide a detailed description of their proposed demand management programs and target outcomes with quantified impact on projections of demand growth as part of the regulatory reset;
- Allow a detailed critical review by the regulator leading to the determination of a fixed amount of funding for demand management to be included in the allowed revenue for the network service provider;
- Includes financial penalties for poor performance coupled with financial incentives for outstanding performance.

Thank you for giving us the opportunity to contribute to this Inquiry. We look forward to reading the report to be released in November.

Yours sincerely

Tony Cooper
Chief Executive Officer
Energetics Pty Ltd

© Energetics Pty Ltd 2012