4 May 2012

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 12

Dear John,

Directions Paper: Power of choice - giving consumers options in the way they use electricity

The Energy Users Association of Australia (EUAA) welcomes a further opportunity to provide a submission to the Australian Energy Markets Commission (AEMC) review of Demand Side Participation in response to the *Directions Paper: Power of choice - giving consumers options in the way they use electricity*.
Yours sincerely

Roman Domanski
Executive Director

Energy Users Association of Australia
ABN 83 814 086 707
Suite 1, Level 2, 19-23 Prospect Street, Box Hill, Victoria, 3128
Phone: (03) 9898 3900 Fax: (03) 9898 749 Email: euaa@euaa.com.au
www.euaa.com.au

Executive Summary

We outlined our views on the most effective ways to promote demand side response (DSR) in the National Electricity Market (NEM). Essential elements of our views are that that energy consumption in the NEM is declining and the rate of growth in maximum demand is moderating.

The EUAA view these fundamental changes in energy consumption patterns as being driven by rapidly rising electricity prices that are now near to the highest in the developed world and are expected to increase even further, sluggish growth in the performance of major sectors of the Australian economy (eg manufacturing and parts of the services sector), to some extent increasing use of energy efficiency initiatives in response to rising prices which to some extent that may have been mandated by Australian Governments or voluntarily offered by equipment and appliance manufacturers. The effects of declining energy use are being reinforced in all end user sectors by the historically dramatic increases that are occurring not only in prices the price of electricity, but also gas and water services – and the increasing cost to households of changing electricity consumption patterns and habits.

Nonetheless, we also note that rapid rises in electricity prices make the deregulation of electricity tariffs more politically difficult.

The penetration and use of air conditioning, particularly in the residential sector, is the major driver of the volatility in maximum demand and wholesale spot market price for electricity in every Region of the NEM. This phenomenon of peak demand (for only 50 or fewer hours per year) has led to inefficient over-investment in both network infrastructure and generation, and hence to electricity bills which are much higher than necessary.

The EUAA suggests that with some changes to the Rules, peak demand can be addressed more efficiently through greater use of DSR.

Fundamental amendments to the Rules are required to promote cost effective DSR. These include:

- compelling Retailers and Distributors to develop and apply cost-reflective network and retail tariffs
- encouraging Retailers and Distributors to provide appropriate information to their customers so those customers are able to benefit from relevant changes in their energy consumption choices.
- ensuring that the benefits of providing DSR is increased relative to the cost and
- making the Rules more balanced and thus ensuring a level playing field.

EUAA members and other large industrial and commercial energy users have substantial demand side (DS) capacity that could be despatched in a manner that improved the efficient operation of the NEM. The fact that a large part of the potential DSR capacity remains idle suggest that the incentives for DSR created by the Rules are too weak.

However, large end users will only offer despatch of their DS capacity if the commercial benefits they individually derive significantly exceed the cost (and inconvenience) of organising despatch. We fully appreciate that these costs are non-trivial.

The EUAA further suggests that DSR is an effective substitute for many types of network infrastructure. However, at present, it seems easier and more profitable for NSPs increase capex and only pay lip service to demand side alternatives. Moreover, DSR is capable of providing a lot of the services that generation provides such as capacity, network support and ancillary services. Thus there is a lot of potential efficiency gain from using more DSR in the NEM. With this in mind, we propose that if the incentives inherent in the Rules were more balanced, NSPs would consider the DSR options more favourably. Consequently, efficiency in the NEM is enhanced because the lowest cost option is chosen.

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Submission to the AEMC on Directions Paper
Power of choice - giving consumers options in the way they use electric

4 May 2012

Suite 1, Level 2
19-23 Prospect Street
Box Hill VICTORIA 3125
Tel: +61 3 9898 3900

Email: euaa@euaa.com.au
Website: www.euaa.com.au

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1. Introduction

The Energy Users Association of Australia (EUAA) is pleased to make this submission to Stage 3 of the Australian Energy Markets Commission's (AEMC) review into Demand Side Participation (DSP) in the National Electricity Market (NEM). The submission responds to issues and challenges outlined in the AEMC's *Directions Paper: Power of choice - giving consumers options in the way they use electricity*.

The EUAA is a non-profit organisation with over 100 members, many of them are major electricity users in each Region of the NEM. A number of EUAA members are, or have indicated interest in, actively engaging with the NEM by providing demand side (DS) capacity. These members recognise that such engagement could deliver clear positive commercial benefits directly to themselves and reduce costs for energy users generally.

However, many EUAA members have also expressed frustration about:

- the lack of interest by their energy retailers in delivering significant benefits from despatch of available demand side (DS) capacity;
- the excessively complex procedures that relate to direct participation in the NEM; and
- the high costs incurred by aggregators who offer to act as intermediaries between the user and NEM participants, where these high costs greatly reduce commercial benefits that can be delivered to end users who offer and despatch DS capacity.

Despite these frustrations, the overwhelming majority of EUAA members are doing what they can to facilitate Demand Side Response (DSR) by responding positively to the Australian Government's Energy Efficiency Opportunities (EEO) program. All members have indentified and acted on energy efficiency measures that deliver clear financial and commercial benefits to their businesses. Many EUAA members have reported positive outcomes achieved through cost effective energy efficiency measures and some have reported significant improvements in energy cost savings in parts of their businesses. Several members have provided information on these experiences in the Case Studies reported on the Department of Resources Energy & Tourism Energy Efficiency Best Practice webpage[1] and the recently launched Energy Efficiency Exchange website.[2]

2. Background to this submission

The EUAA notes that the AEMC commenced the first stage of a review of Demand Side Participation in the NEM in March 2008 and received further instructions from the Ministerial Council for Energy in respect of the current Stage 3 review in March 2011.

Participation in such a drawn out review is a major commitment for any organisation and more so for member-supported organisations such as the EUAA. However, the EUAA has continued to participate in this review because of the potential importance of its final outcomes. These outcomes are particularly important given the AEMC's refusal[3] to place under rigorous examination major changes to the National Electricity Rules (Rules), for

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1 See: http://www.ret.gov.au/energy/efficiency/best_prac/Pages/default.aspx

2 See: http://eex.gov.au/search/~/page/2/?post_type=eex_case_study

3 The AEMC's reluctance to propose major, but sensible, changes to the Rules is illustrated by the continued refusal to consider a capacity market mechanism – despite the demonstrably greater levels of DS participation in the West Australian Electricity Market, which has such a mechanism.

example a West Australian style capacity market mechanism that has been demonstrably effective in incentivising DS participation, in the first two stages of the review that have already been completed.

The EUAA recognises the significant benefits that could be delivered through greater DS participation in the NEM and has been actively involved in investigation, promotion and support of DS activity for many years. For example, the EUAA was a driving force behind an initial trial of a Demand Side Response Facility in late 2002[4] that eventually led to Energy Response Pty Ltd (now ENERnoc Inc) entering Australia's electricity markets as the first DS aggregator. The knowledge, experience and evidence gathered from this long involvement have been brought to bear in preparing this submission.

UAA has attempted to provide evidenced based input to the review and is pleased to note that the *Directions Paper*, and the supporting consultants' reports, are major improvements on previous documents prepared by and for the AEMC review. As a general comment, the *Directions Paper* provides a reasonable summary of the issues and challenges that relate to and inhibit DS participation in the NEM; and the consultants' reports include a reasonable presentation of quantitative information that informs rational discussion of the challenges of promoting DS response in the NEM. We welcome these documents.

The EUAA also notes that the *Directions Paper* provides suggestions about how the AEMC might examine issues in response to comments on the Paper. The EUAA looks forward to the AEMC proposing positive, constructive and meaningful amendments to the Rules that will both enhance opportunities for DS participation in the NEM and ensure that those end users, large and small, who do offer and provide DS capacity are appropriately and adequately rewarded for their efforts.

This submission focuses on particular aspects of DS participation that are relevant to the AEMC's latest stage of this review. In dealing with these aspects, the EUAA has attempted to relate its comments and content to matters raised in the AEMC's Directions Paper. However, no attempt has been made to specifically address the plethora of issues, challenges and questions raised by the AEMC.

3. Focus of this submission

The main issues covered in this submission are:

- Evidence that fundamental changes are occurring in the patterns of energy use in the Australian economy. The AEMC needs to take these changes into account in formulating proposed amendments to the Rules to ensure that market participants are not protected (at the expense of energy users) if they fail to take these changes into account in their own investment decisions.
- Evidence that increasing air conditioning penetration and use remains the major factor driving extreme volatility in demand. This extreme volatility in demand is the major factor that drives price volatility which impacts on the prices paid by both small and large energy users, the latter of which generally have far more predictable and stable load profiles than air conditioning use.
- Evidence that changes to the Rules should focus in increasing rewards and incentives for those end users who are prepared to offer and despatch DS capacity. The alternative

[4] This trial and its outcomes were detailed in a report prepared by Pareto Associates Pty Ltd. See: http://www.euaa.com.au/wp-content/uploads/2011/02/DSR-Trial-Report.pdf

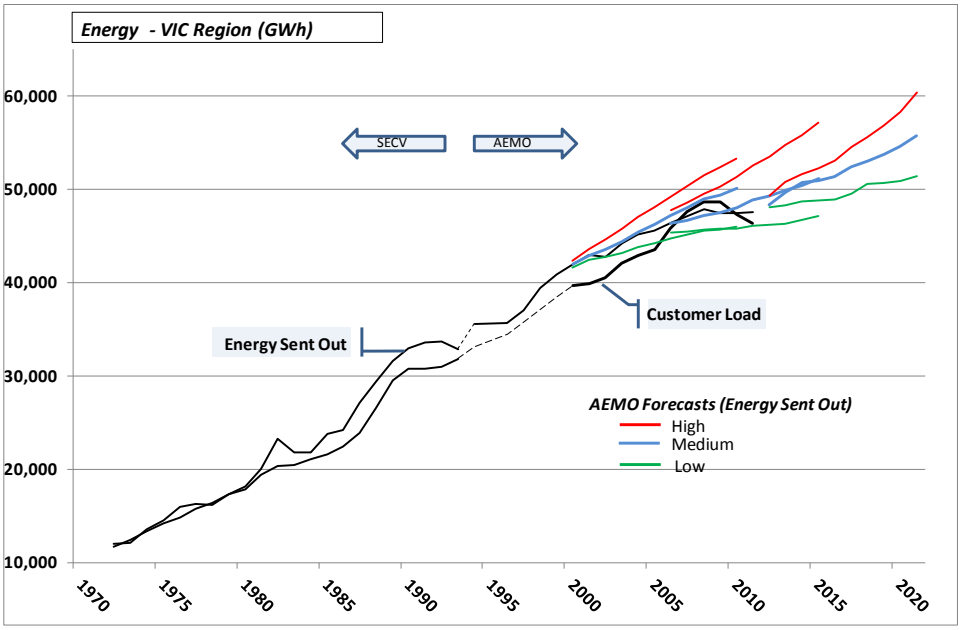
(implied by the AEMC's comments in the *Directions Paper*) of increasing commercial incentives for NSPs and retailers to consider DS response. This will be difficult since certain retailers maybe conflicted in that they are linked or integrated with some generators (i.e.gentailors). Furthermore, retailers' incentives are also likely to compromised because the bulk of their revenue comes from per-kWh charges. This implies that successful DSR may well decrease NSPs revenue and profits. We also believe that it is preferable that incentives should be directed to the end users who 'own' the capacity that can be offered as DSR.

- Evidence that DSR is underutilised in the NEM. This has led to excessive investment in the network and higher electricity prices than is necessary. Thus, a Rule change is required to provide a level playing field. This may, for example, involve decoupling NSP revenue and energy throughput. It could mean paying the parties who supply DS capacity the going market spot price. Alternatively, it could mean allowing the NSPs to earn a greater return on investment in DSR when DSR is the more efficient solution, or for NSPs to face penalties if they fail to use DSR when it is the most efficient solution.

4. Fundamental changes in the electricity market

As illustrated by the data in Figure 1 below, there has been a fundamental change in energy consumption trends over the last decade that has no precedent in at least the last 40 years.[5] The data in this figure shows that energy consumption growth in Victoria stalled in late 2007 and has been trending down for the last 5 years. The AEMC should note that similar trends can be observed in all NEM Regions, although they are most marked in Victoria, NSW and Queensland. The AEMC should also note that the data in Figure 1 shows that AEMO continued to forecast increases in energy production and consumption through to the latest Statement of Opportunities report.

Figure 1: Electricity production and consumption in Victoria 1970-2012



[5] It is likely that the sustained downturn in electricity consumption in Victoria since late 2008 has no precedent since the formation of the State Electricity Commission of Victoria in the early 1920s.

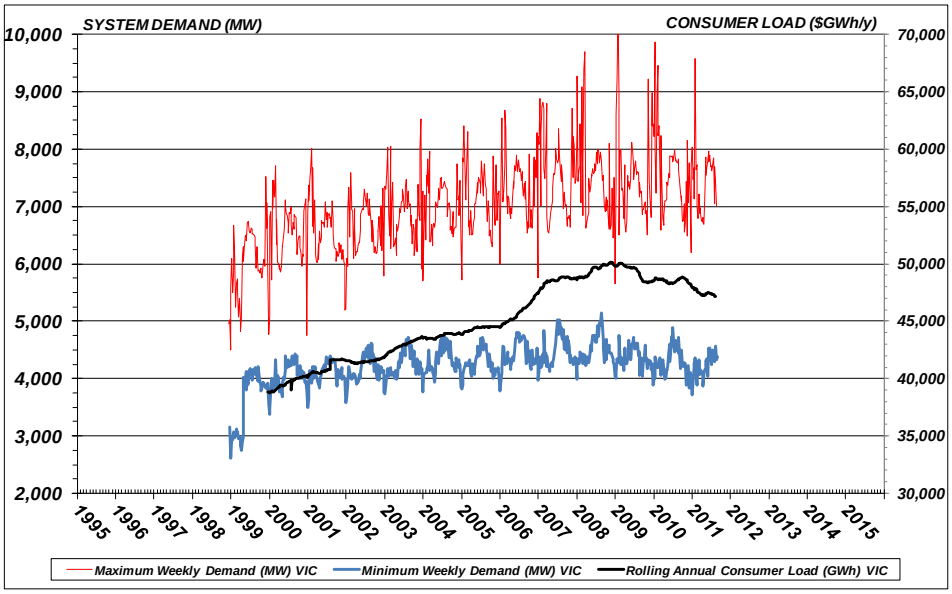
Source: Analysis of State Electricity Commission Annual Reports and AEMO data files and reports by Marsden Jacob Associates.

Data for the period since the start of the NEM has been represented in more detail in Figure 2 below to show rolling annual energy consumption (Customer Load) and minimum and maximum weekly demand. Once again, data in this figure is for Victoria, but similar trends can be observed in all NEM Regions.

The key significance of data in Figure 2 is that it confirms energy consumption growth stalled in 2007 and has been falling consistently since early 2009. Further observations of significance are that 'true' base load (i.e. the level of supply capacity required 24 hours per day, 365 days per year) has remained more or less stable since 2000 at around 4,000MW, while the growth in maximum demand appears to have slowed since 2009.[6]

However, despite the apparent slowing in growth of energy consumption and maximum demand, the 'spread' in maximum demand (i.e. the difference between the lowest and highest maximum demand in any year) remains substantial at nearly 5,000MW.

Figure 2: Electricity and consumption and demand in Victoria 1999-2012



Source: Analysis of AEMO data files by Marsden Jacob Associates.

This means that, even if energy consumption is falling – and maximum demand growth is slowing – only around 40% of total supply side capacity is utilised 100% of the time while another 40% of total supply side capacity is utilised to satisfy maximum demand. The latter involves a significant commitment in resources and expenditures usually satisfied by supply-side investments in peaking generation and network capacity. It is at least debateable that this is always the more efficient response to this segment of demand.

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[6] Clearly, some caution is required when drawing conclusions about growth in extreme peak demand. It may be that increasing energy efficiency will impact on demand growth, particularly when air conditioning is a major focus of the Mandatory Energy Performance Standards (MEPS) scheme.

However, the highest extreme peak demand for Victoria occurred on Black Saturday, 7 February 2009, when the temperature in Melbourne reached 46°C. It is reasonable to assume that the extreme peak demand would have been much higher again (provided the electricity supply system could withstand the shock) if the same weather conditions had occurred during the working week following Black Saturday.

It is likely that the impact of energy efficiency measures will increase in the coming decade (at least) as a response to rapidly rising electricity prices, as older, less energy efficient appliances and equipment are replaced by businesses and households, as the energy efficiency performance of building stocks increases and industrial and commercial energy users indentify and pursue all commercially viable energy efficiency initiatives.

It is also possible that incentives for increased energy efficiency will reinforced by the historically dramatic increases not only in the price of electricity, but also gas and water– and the increasing cost to households, in particular arising from their enthusiasm for higher volumes of telecommunications services. The impacts from increasing energy efficiency could also be reinforced by an increasing proliferation of small scale distributed generation, particularly Solar PV that is becoming more popular, particularly driven by generous subsidies, by lower costs and by grid-connected energy supply cost increases.

It is also interesting to note that reductions in water consumption have been achieved without the support of sophisticated metering or sophisticated tariff and pricing structures. This suggests, at a *prima facie* level at least, that similar behavioural changes could be induced in respect of electricity (and gas) consumption through focussed consumer education programs, even without the need for substantial investment in sophisticated energy metering or development and implementation of more complex tariffs. On the other hand, there are differences in the electricity consumption patterns and habits of consumers compared to water and the supply of electricity is more market-based than water.

It is also far less clear that 'consumer education' alone would be effective in moderating extreme demand on very hot days. Consumers may well be persuaded to turn down their thermostats on the first of a series of hot days. But it is less certain they would respond in sufficient numbers – on a voluntary basis alone – on extremely hot days or after a run of very hot days. Under these circumstances, voluntary response would deliver very little 'economic efficiency' benefit if all that occurred was less frequent, but equally severe, extreme demand when consumers finally buckled under the pressure of excessive heat. To go further could well require a market and regulatory set of incentives involving a combination of 'carrots and sticks'.

Some key supply side implications that the AEMC will need to take account of in its deliberations on DS participation are:

- The impact of energy efficiency measures, which are certain to be reinforced by increasing utility service costs generally, have the potential to strand new investment in supply side assets that is intended to cope with (an assumption of) continually increasing growth in electricity consumption and demand.
- No new 'base load' generation (or, indeed, supporting network) capacity is required while exiting coal plant remains in service.
- A requirement will grow for reliable and flexible generation and network that will allow the system to cope with both the 'spread' of maximum demand and to accommodate the variable output of large scale and small scale renewable generation capacity.
- There will be a requirement for better monitoring and control capability for electricity networks, particularly in the low voltage parts of the networks that connect air conditioning load and small-scale distributed generation. The AEMC should ensure that appropriate incentives exist to 'encourage' network and retail investors to provide this capability at the lowest practicable cost. At the same time, any such capabilities should

support the rollout of the lowest practicable cost of suitable metering and DS capability that would allow energy users to benefit from offering and providing DS capacity in the NEM.

The EUAA accepts that there is a high degree of uncertainty in electricity demand and consumption forecasts. But the main point being made is that increasing DS participation could assist in dealing with this uncertainty; but current incentives for offering and despatching DS capacity are too weak.

Furthermore, the EUAA considers that the net benefits of supplying DSR need to increase in order to encourage more DSR. Under the current Rules, the cost of providing DSR is too large relative to the benefit.

For example, to trade directly in the NEM, commercial and Industrial users would have to bear non-trivial cost so as to:

- establish the skills to manage their trading position 24 hours per day 7 days a week;
- provide prudential cover which is a significant expense;
- settle with the wholesale market every week; and
- manage the multiple network businesses who deliver the electricity to various sites instead of the retailer doing this for them.

On the other hand, the benefit of supplying DS capacity under the current Rules seems inadequate relative to the cost. That is, the financial benefit from supplying 1MW of DP capacity is merely the cost saving of not using that particular 1MW of electricity. The EUAA is of the view that DSR will be encouraged if the supplier of DS capacity is able to capture the benefit of the current 'spot price'. This is likely to be the case when the spot price rises in 'peak demand hours'. In other words, the current Rules do not treat the production of 1MWh (by generators) of electricity and the supply (withdrawal) of 1MWh electricity (by aggregators) equally.

5. Potential to develop DS capacity

The EUAA has recently been involved in a project that assisted the Department of Resources Energy and Tourism (DRET) develop material for the recently launched Energy Efficiency Exchange (EEX) website.[7] This involvement included provision of detailed information by several EUAA members on key aspects of their energy procurement, energy efficiency and demand side response experiences.

While very little of the detailed information provided by users finished up on the EEX website, the project confirmed that EUAA members, and other large industrial and commercial energy users, have substantial demand side (DS) capacity that could be despatched in a manner that improved the efficient operation of the NEM. The evidence for this is also demonstrated by observation of wholesale market outcomes noted in the AEMC's Directions Paper and accompanying consultants' reports; and through evidence provided to the AEMC by individual users and demand side aggregators such as ENERnoc.

[7] See: http://eex.gov.au/search/~/page/2/?post_type=eex_case_study

However, the information collated for the DRET project showed that large end users will only offer despatch of their DS capacity if the commercial benefits they individually derive significantly exceed the cost (and inconvenience) of organising despatch. The fact that a large part of this potential DS capacity remains idle while network and energy costs are rising strongly suggests that the incentives for DS participation created by the NEM and/or the National Electricity Rules (the Rules) are too weak.

It is the EUAA's view that any changes to the Rules that seek to increase incentives for providing DS capacity must ensure that end users who provide that DS capacity derive a lion's share of the benefits that can be captured through energy trading and contract measures. Amending the Rules to increase the benefits captured by network service providers or energy retailers will not effectively increase incentives for end users to provide DS capacity. There is a real risk that the benefits will be substantially captured by the supply-side and the amount of DSR will be less than optimal.

It is also the EUAA's view that any amendments to the Rules that are intended to improve DS participation in the NEM must be 'stress tested' to ensure they will effectively support and promote take up of DS participation in the NEM, even if energy consumption, and (potentially) maximum demand, continues to decline. To avoid doubt, any amendments to the Rules should not seek to protect network service providers (NSPs), or energy retailers, from inefficient investment decisions they make in anticipation of continuing growth in energy consumer and maximum demand. Exposing NSPs and energy retailers to the consequences of their poor investment decisions will provide increased incentives for them to look seriously at promoting efficient DS participation.

6. Conclusions and recommendations

The evidence presented in this submission demonstrates that – despite the 'best intentions' of Government and regulators – the uptake of DS opportunities has languished at levels well below the available potential capacity. This suggests that there are real obstacles to expanding DSR capability. One way of viewing these obstacles is to examine carefully the incentive structure emanating from the current Rules. The EUAA suggests that the current Rules, on the whole, tend to favour the capex or supply-side solution rather than the DSR option. This has led to excessive investment in the network and to unnecessarily high prices for energy consumers.

The EUAA urges the AEMC to examine carefully the various options discussed in this submission and to do the necessary cost benefit analysis to verify for itself if these options are viable. The EUAA is of the general view that competition in the NEM should be encouraged and reducing the obstacles to DSR, which will tend to increase its usage, is one way of increasing competition and ultimately efficiency in the NEM

Despite that situation, the declining rates of growth in energy consumption demonstrate that energy users are responding to the high electricity prices and a range of other factors by increased energy efficiency. Such opportunities are being reinforced by cost pressures that arise through current, demonstrably 'inefficient' price signals and tariff structures. Combining DS benefits that are derived from energy efficiency with increased take-up of short-term DS capacity has the potential to substantially improve the efficiency of the electricity market and deliver overall benefits to energy users.

The EUAA encourages the AEMC to discharge its obligations reasonably and fairly to achieve a much better outcome for energy users. This can be done by proposing and implementing changes to the Rules that:

- Incentivise (or require) NSPs and energy retailers to provide appropriate, meaningful and useful information to their customers so those customers are able to benefit from relevant changes in their energy consumption choices.
- Incentivise (or require) NSPs and allow energy retailers to develop cost reflective network and retail tariffs.
- Ensure end users who provide DS capacity derive clear and an appropriate level of benefits from this action.
- Ensure that DSR is not discriminated against as a viable option.

However, any proposed amendments to the Rules must be 'stress tested' to ensure they will effectively support and promote the take up of DS participation in the NEM, even if energy consumption, and (potentially) maximum demand, continues to decline and as the Australian economy becomes more energy efficient.