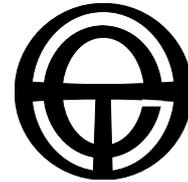


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**SUBMISSION**  
to  
**AEMC**  
**Review of demand-side participation in the**  
**National Electricity Market**

**Stage 2: Issues Paper**

**27 June 2008**

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# Review of demand-side participation in the National Electricity Market Stage 2: Issues Paper

## 1. Introduction

### 1.1 Review of demand-side participation in the National Electricity Market

Total Environment Centre (TEC) is pleased to be able to have further input to the Review of demand-side participation in the National Electricity Market (NEM). We have written many submissions in a number of contexts separate to this review that contain discussions relevant in this context. We have therefore forwarded some of these along with this submission and we have referenced them in the relevant sections. It should be noted also that the report by the Institute for Sustainable Futures/TEC assessing the NSW D-factor<sup>1</sup> also addresses many of the concerns raised in the Issues paper, and we refer the AEMC to that report (which has already been sent through in a previous stage of the review). Note also that TEC's Rule change package is directly relevant here<sup>2</sup>.

Our recommendations are, in summary:

- Ensure networks investigate DM as a first choice instead of network augmentation; networks to be obligated to implement non-network solutions where equal to or more cost effective than augmentation.
- DM targets linked to penalties/rewards should be established by the regulator.
- A DM funding mechanism should be established.
- Establish incentives throughout the NEM for the implementation of DM and the use of small, local generators based on alternative energies.
- The Rules should refer to a Demand Management (DM) Code of Practice for distribution and transmission networks, with the NSW model to be adopted as a minimum (including the protocol for disclosure of information).
- Ensure networks disclose information on impending need in a timely manner.
- Return to or retain a revenue cap for distribution networks to remove the incentive to promote increased demand and consumption.
- Provide transparency of pricing in relation to demand and constraints – end users are currently unaware of the true price of their electricity.

### 1.2 Scope of this submission

TEC has provided the AEMC and other bodies with submissions on many of the subjects discussed in this Issues paper and we have attached some of these here:

- Submission by TEC, the Alternative Technology Association (ATA) and the Ethnic Communities Council of NSW (ECC) to the Ministerial Council on Energy

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<sup>1</sup> Institute for Sustainable Futures (2008) *Win, win, win: Regulating Electricity Distribution Networks for Reliability, Consumers and the Environment*, Report prepared for Total Environment Centre, January, 2008

<sup>2</sup> Total Environment Centre (2007) *Rule change proposal – demand management and transmission networks*, November 2007

(MCE) on *Network Incentives for Demand Side Response and Distributed Generation*, 30 May 2007;

- Submission by TEC, ATA and the ECC to the MCE on Network Planning and Connection Arrangements – National Frameworks for Distribution Networks, 5 October 2007;
- Submission by TEC to the Australian Energy Regulator (AER) on Potential development of demand management incentive schemes for Energex, Ergon Energy and ETSA Utilities for the 2010–15 regulatory control period – Issues Paper, 27 May 2008.
- Submission by TEC to the AEMC on National Transmission Planning Arrangements – Draft Report, June 2008.

TEC's Rule change package<sup>3</sup> also covers some of the same ground. Although the package was focused on transmission issues, much of the discussion is also relevant to distribution network planning.

We also note that the Consumer Utilities Advocacy Centre produced a substantial report on barriers to distributed generation<sup>4</sup>, which we understand has been sent through to the AEMC, and in general we support the findings of their research.

Therefore, to honour the intent of the Issues paper – the canvassing of issues – and to provide supporting information, we have focused in this submission on matters that require additional discussion over and above that contained in our previous submissions.

In this submission we have addressed:

- Latest TEC research on electricity network regulation
- Terminology and concepts
- Economic regulation of networks
- Tariff structures
- Network planning
- Network access and connection arrangements
- Wholesale markets.
- Appendix A: Preliminary findings from the Headberry and Lim report, "Does current electricity network regulation actively minimise demand side responsiveness in the NEM?"<sup>5</sup>.

## **2. Latest TEC research on electricity network regulation**

TEC has engaged consultants with the assistance of the Advocacy Panel to investigate: "Does current electricity network regulation actively minimise demand side responsiveness in the NEM?". The final report will be sent through to the AEMC in early July.

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<sup>3</sup> Total Environment Centre (2007) *Rule change proposal – demand management and transmission networks*, November 2007

<sup>4</sup> Szatow, T (2008) *Beyond free market assumptions: Addressing barriers to distributed generation*, Consumer Utilities Advocacy Centre, April 2008

<sup>5</sup> Headberry Partners and Bob Lim & Co (2008) *Does current electricity network regulation actively minimise demand side responsiveness in the NEM?*, Prepared for Total Environment Centre

In the context of promoting demand management and consumer interests, the preliminary findings of the research are that:

- The building block approach to regulation provides an active disincentive to DM.
- Price cap regulation provides an additional disincentive to DM.
- Additional incentive schemes, such as DM targets, should be established for the optimal delivery of DM.
- Revenue caps are the 'least worst' form of regulation for DM, compared to price caps.
- DM programs would be even more effective if they were driven by an overarching energy policy requirement for achieving energy efficiency targets across the entire electricity supply chain.

Our aim in commissioning this report is to facilitate review of the economic regulation of NSPs by assessing certain forms of regulation from a DM and consumer point of view. We expect to draw further on this report as the DSP Review progresses.

### **3. Terminology and concepts**

#### **3.1 Participation**

The term "demand side participation" is used seemingly without definition in the Issues paper. By implication in many places it is used to refer to what we would consider to be "demand management" in general; in others it seems to refer to "demand side response". TEC has been arguing for more rigorous applications of terms to standardise the language in order to avoid confusion. On the surface, one would expect demand side participation to refer to all participants on the demand side; however, it appears that the demand side referred to is limited to large users, or demand management providers. There does not seem to have been any real consideration of small consumers, except in more generic discussions about normal markets (that is, the general relationship which exists between producer, retailer and consumer).

There is a similar problem with the use of "participants". From the context it would seem that in fact it does not refer to participants in general but rather to the Rules use of the term "market participants". This too excludes the consideration of small consumers, who are participants also (in the generic sense of the word). Perhaps this is simply a reflection of the intent of the Issues paper, which is in essence a discussion of issues around networks. Such anomalies, however, are not only confusing but give rise to a suspicion that the potential for engagement by small consumers has been overlooked.

The Rules are set up in terms of "market participants" but the way this is defined – essentially those engaged in electricity commerce – automatically excludes consumers, who are not by definition "participants" in the market. Although "the long term interests of consumers" is contained within the Objective, in practice this is lip service. Reliability and security generally rule as first principles, alongside business efficiencies. However, there is more to a market, as noted in the Issues paper – customers need to have the facility to exercise choice. The definition of market participant does not fully meet this necessity. Clearly very few consumers – and certainly no small or medium ones – participate in the wholesale market; but neither do they fully participate in the retail market due to the limitations on their choice.

For instance, also as noted in the paper, many consumers simply receive a quarterly bill with price averaged across that period. The institution of time of use tariffs would make it clearer to consumers what a volatile market the NEM actually is. These are being used for some industrial and commercial users in some parts of the NEM. However, many consumers are not exposed to the fluctuations, nor are they even informed of them. It is a fundamental flaw of the market design.

### **3.2 Source of energy**

In the Executive summary (p 1), it is pointed out that when consumers can interact with a market they can make more informed decisions. An oversight in the description of the decisions they can make refers to the *source* of the energy they consume. There are currently limited options with the main decision being between gas or electricity, which is obviously not a genuine choice for many services. There are now various GreenPower products and the scope is expanding, but these too are usually very broad selections since there are few products that specify the type of renewable energy on offer.

This is not necessarily something the AEMC can correct overall, but it is a drawback of the electricity market as it now operates. What it does mean is that to properly allow renewable energy generators – micro or large – proper access to the electricity system and the NEM, it is critical that barriers to entry are removed. As many have pointed out, such as in the CUAC paper<sup>6</sup> and including the TEC, ATA and ECC submission<sup>7</sup>, although the Rules have been modified to allow easier entry there are still a number of problems. Removal of barriers has a dual purpose – to prevent exclusion of possible participants; and to enhance consumer choice. Clearly it will also gain greater weight as climate change policies expand. Moreover, most of the solutions to these barriers would be “simple, low cost and high impact”.

## **4. Economic regulation of networks**

### **4.1 Competition failure**

Although the intent of regulating network businesses may be to mimic a competitive market (p 9), the lack of development of DM services and the continuing barriers to embedded generation demonstrate the intent has not been enacted. We cannot stress sufficiently, as we have done in so many submissions, that non-network techniques are *not* participating in a competitive market. The networks are monopolies, and although they may be restricted to at least some extent from having a free rein on how much profit they raise, except when they are regulated under a price cap, nonetheless they are large companies with substantial resources behind them and a long history of ruling the market. Providing assistance to alternative techniques may require extra resources at present but in the long term it will result in a more efficient system, with lower greenhouse gas emissions, with the need being adequately addressed rather than augmentations and repair being the first response.

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<sup>6</sup> Szatow, T (2008) *Beyond free market assumptions: Addressing barriers to distributed generation*, Consumer Utilities Advocacy Centre, April 2008

<sup>7</sup> TEC/ATA/ECC (2007a) *Submission to the Ministerial Council on Energy on Network Incentives for Demand Side Response and Distributed Generation*, May 2007

## 4.2 Incentives

Incentives are presented as a way to promote that intent and the AER, as directed by a new Rule, has started deliberations and consultations about the design of incentive schemes for distribution. The AER provided a good coverage of incentives that are operating at a jurisdictional level (in their report on SA and Queensland), from which they have selected a combination of the NSW D-factor approach and the SA “learn-by-doing” approach as useful models to at least provide a starting point. The Institute for Sustainable Futures/TEC report, *Win, Win, Win*, plus the TEC/ATA/ECC submission on *Network Planning and Connection Arrangements* also include discussions on incentives for distribution businesses. (Note: one of the features of the D-factor is that essentially the costs are passed through – where there are extra costs – which does at least partially address the capital expenditure versus operational expenditure problem.)

TEC also considers that although the AER is proceeding to investigate the potential for incentives, we are not clear as to why the Rules did not give more direction to the AER about what kind of incentives would be useful, nor what kind of gains and/or targets the AER should be aiming for with such schemes. If the Rules are to set the scene in a lasting way, then more concrete results for long-term establishment of such schemes should be included in there. It seems the AEMC could be using the AER to test the water in terms of what kinds of schemes will be acceptable to the businesses themselves. Such schemes could fall short of discernible results if there are no goals set; development of DM targets could be required to get solid results.

For instance, as the research undertaken for *Win, Win, Win* shows, even with a genuine concern for achieving higher rates for DM via both the D-factor and a DM Code of Practice, there has been very modest implementation of DM programs by DNSPs in NSW. The mix of targets and incentives in California should be investigated for options applicable to the NEM. TEC’s latest report, “Does current electricity network regulation actively minimise demand side responsiveness in the NEM?” touches on these approaches and provides an indication of directions for future research.

We also note there has been some progress about “non-network solutions” in the Chapter 6 Rules about distribution as referred to in the Issues paper (p 9). TEC considers, however, that the Chapter 6 Rules do not go far enough in promoting these solutions, which is a contributing factor to our continued participation in this consultation process.

Additionally there has been no such attention paid to transmission (as TEC has presented in our Rules change package). There needs to be serious consideration given by the AEMC and the AER to the potential for well-developed incentive schemes for transmission as well as the potential for undermining of these by other provisions in the Rules. We are particularly concerned about the heavy emphasis on reliability being seen as mutually exclusive to non-network actions. Another point worth making is that in a sense the division between transmission and distribution is an artificial one – there is a seemingly arbitrary distinction made between them via a rudimentary division by voltage. Network size covers a spectrum above and below the dividing line.

### 4.3 Risk

Another issue TEC has been arguing for a long time is the perceived risk of non-network solutions. This is a circular argument – if they are perceived as high risk, they will not be used so there is no experience with them, therefore they may indeed constitute a greater risk than augmentation. The claim by networks that DM is inherently unreliable has not been substantiated. To the contrary, despite the modest gains from DM and DG across the NEM, there are now success stories of the reliability of such solutions. Moreover, the greater the variety there are the more reliable and the more cost effective they will become. Until fact-based evidence is provided to support the claims of ‘high-risk’ DM, regulators should not accept it as an excuse for the networks’ failure to implement DM.

The AEMC, the AER and NEMMCO need to take the lead in assessing successes and failures. We strongly urge a proper review of DM and DG projects to date. This should result in a database maintained by the AER which would be updated annually and made publicly available. Either the network businesses could include the information in their annual reports to the AER, or provisions could be made for separate annual DM reports to the AER. These data could then be accessed by NSPs when a need is perceived as potential models that could be used instead of network augmentation.

## 5. Tariff structures

Cost-reflective tariffs are certainly necessary to assist consumers in accessing information about the actual costs of their energy, since the usual scenario of quarterly billing and smearing of costs gives the consumer no sense at all of the enormous variation in the wholesale price. TEC would also agree that interval meters are a mechanism for conveying that information to the network and retail businesses.

The discussion in the Issues paper, however, seems to be concentrated on a discussion of the need for cost-reflective pricing in terms of promoting the uptake of EG. Although this may be the result for some, it is likely that very few small consumers would invest the capital required for EG simply to bring down their electricity costs. It would appear from anecdotal evidence that many small consumers who install EG do so for conservation reasons rather than cost. The argument is more likely to apply to medium and large users, who we understand – certainly in NSW – are already having interval meters installed at a greater pace than small consumers.

There are remote consumers who could benefit from the installation of EG if there was true locational pricing. This raises the question of equity, however, that is, electricity is an essential service and to impose locational pricing on a section of the small consumer base is to discriminate against those consumers on the basis of their residence. This seems to be squarely in conflict with the NEL Objective regarding security of supply and their long term interests. It also relies on a rollout of interval meters to *all* of these consumers, which at this stage is far from certain. If only some remote consumers receive interval meters and hence locational pricing could apply to them, then those who do not have such meters will be receiving an advantage. This is a very peculiar argument in the Issues paper. These consumers are essentially being forced to make a capital investment that may be in their long-term interests but that could impose hardship in the short term.

It may be appropriate to include a locational component in tariffs for medium and large users in remote areas, for instance, but then this could raise equity questions again. It would also potentially go against other government policies about regional development. If such a component was included, then it should only refer to the use of the networks.

The cost-reflective pricing debate is also not simply about capacity charging versus the status quo. It is also to do with the price at the time of consumption, as noted in the introduction to section 2.4. The two parts to the argument need to be properly addressed separately, since time of use applies to all consumers. Currently the costs would appear to small consumers in particular to be flat, and time of use tariffs – with the details spelt out in customer accounts – would better inform them about the true costs.

We would certainly support the overall concept of cost-reflective pricing, but the discussion of these issues needs to be presented in a more coherent way. There is also currently another drawback to putting cost-reflective signals into place since it is the retailers who predominantly deal directly with consumers. There is no national system planned for influencing retail tariffs, which are being left to the jurisdictions (which is equally a problem for any mass rollout of interval meters to small consumers in particular). This is a complex issue which needs a more thorough investigation than that presented in the Issues paper.

## **6. Network Planning**

As noted in the Issues paper, the usual approach for NSPs when facing a perceived problem – whether of decaying infrastructure or a potential constraint – is to focus on improving the network, through repair or augmentation. Historically they do not “consider alternative options for service delivery” (p 15) as standard practice. Ideally networks should publicly present a statement of the problem and request proposals for alternative options, then the options should be weighed equally. The AER should also be enabled to disallow the costs of network augmentations or repairs where the NSP has not adequately pursued proper investigation of all options, in particular, non-network options.

TEC’s new report “Does current electricity network regulation actively minimise demand side responsiveness in the NEM?” shows how current regulatory practices actively disincentivise DM, in particular through the building block and price cap approaches. It is preferable for regulators to return to the revenue cap approach and to establish effective DM incentive schemes, such as DM targets linked to a reward/penalty system, to counter the opex/capex problem inherent in the building block approach.

TEC’s Rule change package includes a different approach and provides a detailed presentation of these issues, and TEC/ATA/ECC also discussed this problem in detail in our submissions to the MCE<sup>8</sup>.

Moreover, their planning usually only becomes public when they are tendering for proposals as an alternative to their presented network solution; or they are obliged to

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<sup>8</sup> TEC/ATA/ECC (2007a) *Submission to the Ministerial Council on Energy on Network Incentives for Demand Side Response and Distributed Generation*, May 2007;  
TEC/ATA/ECC (2007b) *Submission to the Ministerial Council on Energy on Network Planning and Connection Arrangements – National Frameworks for Distribution Networks*, October 2007

undertake a Regulatory test. This does not lend itself to favouring non-network solutions, and the revisions to the Regulatory test are, at least in part, intended to encourage the businesses to more properly assess alternative solutions. TEC recently did a submission to the AEMC on National planning arrangements<sup>9</sup> with a focus on the Regulatory Test, and we proposed some Rule changes to assist. This applied to transmission, but most of our discussion is also apposite to distribution networks. We have attached that submission.

One of the failings of the Regulatory test is that it is primarily a failsafe provision and the monetary limits are artificial. As noted in the Issues paper, networks first perceive a problem then usually look at network solutions. If that solution turns out to cost more than the sum nominated in the Test then they will be obliged to look at alternatives and (if the Test is designed properly) assess them thoroughly against each other. This still leaves the problem of the businesses looking for network solutions first, as well as the situation where network solutions fall below the sum provided by the Test.

Therefore there needs to be accompanying regulations and incentives for NSPs to seek a broad range of alternatives as their first step. There must be a range of mechanisms to encourage them to do this (and see our discussion in section 4) for solutions of lower cost than that nominated in the Test – we would emphasise that a mass of small, cumulative decisions can have just as great an effect on efficiency and greenhouse gas emissions as one large decision.

## **7. Network access and connection arrangements**

### **7.1 TUOS and DUOS rebates**

Problems raised about these rebates to embedded generators seem to represent a feeble attempt at excluding them from the system. It is clear that EG brings wider benefits to the system; what is not clear is why the issue continues to be canvassed. See the TEC/ATA/ECC submission on Impediments to DG<sup>10</sup> for further discussion of this and a range of details concerning connection arrangements for EG.

### **7.2 Deep versus shallow**

Similarly, the deep versus shallow argument continues to be raised in relation to embedded generation (small and usually renewable) but not in reference to established market participants (large generators). The Rules have established that shallow connection costs should apply to the latter – why not the former? To suggest that deep connection costs should be applied to embedded generators is a specious argument. See the abovementioned submission for further discussion.

## **8. Wholesale markets**

TEC's Rule change package on DM includes a proposal for establishing pricing mechanisms, since there is currently no method for setting the price of demand side response (DSR) or more general DM activities within the market pool. This is inhibiting the development of a mature DM aggregation market, with most current activity relating solely to large industrial users. Setting a price for DM in the market pool will encourage

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<sup>9</sup> Total Environment Centre (2008) *Submission to the AEMC National Transmission Planning Arrangements – Draft Report*, June 2008

<sup>10</sup> TEC/ATA/ECC (2007a) *Submission to the Ministerial Council on Energy on Network Incentives for Demand Side Response and Distributed Generation*, May 2007

greater investment and facilitate growth of DM aggregation as a market commodity. A market mechanism that provides the opportunity for proponents to bid into the market would encourage new DM entrants; promote competition for existing DM businesses; and make the implementation of DM options easier for network businesses. The ability to bid into the market pool would allow for a short-term price to be set for DM in peak periods (which would flow on to long-term pricing), while a long-term price would facilitate DM hedge contracts that would compete with contracts for baseload supply.

This change clearly comes under the category of a complex solution. When TEC first proposed the Rule change, it was not quite clear whether an emissions trading scheme would become a certainty, nor when one might be established if it came about. It is now certain there will be such a scheme from 2010. Additionally, proposals for energy efficiency trading schemes are being mooted (though how they will interact with an ETS is not yet clear). These schemes potentially enhance the viability of DM services as a marketable product – if the market participants in the NEM do not take advantage of the changing climate around them, they will be left behind. They are demonstrating remarkably short-sighted vision by clinging to the status quo.

## Appendix A

### *Preliminary findings from the Headberry and Lim report: “Does current electricity network regulation actively minimise demand side responsiveness in the NEM?”*

#### **1. The building block approach**

TEC notes that the building block approach to regulation has inherent disincentives to DM. These are outlined below.

##### **1.1 The rate of return of capital (WACC)**

This approach has embedded in it all of the base profit the network receives for providing the service. Compared to this, the allowance for opex is provided for only at cost, and does not include any profit to the network for spending on any element included in the opex allowance. As many DM programs are opex based rather than network based, there is an active disincentive embedded in the building block approach against DM.

This situation suggests that regulators should not assume that the current regulatory framework is neutral to DM. To the contrary, the AEMC and/or the AER should actively investigate and implement strong DM incentives to level the playing field.

##### **1.2 Ex-ante approach**

The ex ante capex program provides networks with the ability to spend capital within the regulatory allowance, but with no subsequent assessment of its economic efficiency or prudence. This provides no oversight to ensure the network has implemented DM when equal to or more cost-effective than augmentation.

#### **2. Incentive schemes**

##### **2.1 The service performance incentive scheme**

Amongst networks there is a recurring assertion that DM has implicitly less reliability than a network solution. Although these claims have not been substantiated by evidential support, the culture of support and familiarity with network approaches, combined with the performance incentive scheme, results in the favouring of network approaches over non-network solutions.

On the basis that network solutions are perceived to provide a higher reliability than non-network solutions, the performance incentive scheme incentivises network solutions, as the network is required to take the risk (pay a penalty) if the performance is worse than the target, and is rewarded if performance is better than targeted. Thus a side-effect of the performance incentive scheme is to discourage DM solutions by actively encouraging the approach that is perceived to be more reliable: that is, by the use of network approaches.

##### **2.2 The Efficiency Benefit Sharing Scheme (EBSS)**

The purpose in applying the EBSS is to incentivise the network to spend less opex than has been allowed in the revenue reset. In principle, this approach encourages networks to operate at the level of opex that is most economically efficient. The downside of this incentive scheme, however, is that any program that is included in the opex (such as DM)

and which can be addressed in another way (such as network augmentation) provides an incentive for network solutions over DM.

### **3. Price caps versus revenue caps**

Once a revenue is determined under a price cap form of regulatory recovery, the network develops a set of tariffs which in theory will recover the allowed revenue based on the demand and consumption expected in the network over the regulatory period. If the demand and consumption vary then the network accepts the risk and/or benefits for such variation. This leads to the situation where any approach which is likely to reduce the total amount of electricity carried on by the network will be considered by a network to be against its commercial interests. A price cap therefore incentivises the network to increase demand and consumption of electricity to raise its profitability, and to reduce unit costs to consumers, and is therefore a strong disincentive to DM.

The revenue cap, in contrast, appears to be more neutral to DM, notwithstanding the inbuilt disincentive to DM in the building block approach. This is because a revenue cap form of regulated recovery of revenue merely requires the network to develop a set of tariffs which will return the allowed amount of revenue. Tariffs change from year to year to allow the network to recover the allowed amount of revenue and this insulates the network from any variation in demand or consumption within the network. A revenue cap, therefore, of itself does not incentivise or disincentivise the network to provide DM approaches.

### **4. Remedies to active regulatory disincentives to DM**

On investigating various jurisdictions' approaches to overcoming inherent disincentives to DM, the report includes these recommendations:

1. Separate and parallel DM incentive schemes, established and overseen by regulators, are the most effective way of ensuring DM initiatives by network businesses.
2. The use of a revenue cap, removing the incentive for networks to increase demand and consumption, would be required in addition to DM incentive schemes.
3. Demand management programs for each network business might contain the following features:
  - a. Identification of DM options and target outcomes, and establishment of a pact between regulators and network businesses
  - b. Inclusion of a fixed amount of funding for DM to be included in the allowed revenue for the network business
  - c. Incorporation of a program of benefit sharing, and financial incentives and penalties
  - d. Implementation as part of the regulatory reset.
4. An overarching energy policy requirement should be set by government for actioning energy efficiency targets across the entire electricity supply chain.