



Submission by
Alternative Technology Association

Australian Energy Market Commission
**Review of Demand-Side Participation in the
National Electricity Market**
Stage 2: Issues Paper

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By Email to: submissions@aemc.au

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Introduction

ATA welcomes the opportunity to offer comment on the Australian Energy Market Commission's *Review of Demand-Side Participation in the National Electricity Market Stage 2: Issues Paper* (the Issues Paper).

ATA is a not-for-profit organisation established in 1980 to empower our community to develop and share sustainable solutions for the way we live and to promote the uptake of sustainable technologies in order to protect our environment. The organisation provides service to over 4000 members, who are actively promoting sustainability in their own homes by using good building design and implementing water conservation and renewable energy technologies.

ATA advocates in both the government and industry arena for ease of access and continual improvement of these technologies, as well as the production and promotion of information and products needed to change the way we live. As Australia's peak member-based organisation representing early-adopters of renewable energy systems, ATA is in a unique position to highlight the needs and concerns of small-scale renewable energy system owners and their interaction with the retail energy market.

ATA members have a vast experience experimenting and demonstrating the effectiveness of a range of sustainable technologies. These technologies all face a range of market failures and barriers that continue to hinder the widespread uptake of these technologies.

This submission focuses on Section 4 of the issues Paper: *Network Access and Connection Arrangements*, with a specific focus on the barriers confronted by small-scale renewable energy proponents. Many of these barriers are outlined in a study by ATA, entitled *Impediments to Grid Connection of Solar Photovoltaic: the consumer experience*. A summary of these impediments are provided in Appendix A¹.

4. Network Access and Connection Arrangements

1. Arrangements for avoided TUoS and DUoS may under/over value demand management options

It is quite clear that DG, by definition, avoids the need for transmission capacity. It equally clearly follows that in the interests of economic efficiency and competitive neutrality, DG projects should have access to these avoided transmission costs, in order to facilitate DG projects that otherwise may not be established. This is why transmission use of system (TUoS) pass-through arrangements were established.

We accept the presentation of the current problems surrounding the payment of avoided TUOS charges to DG proponents and that it is not sustainable to require DNSPs to pass

¹ The full report, *Impediments to Grid Connection of Solar Photovoltaic: the consumer experience*, is available from: <http://www.ata.org.au/projects-and-advocacy/barriers-to-solar-grid-connection>

through avoided TUOS charges to DG proponents if the DNSPs themselves do not in fact avoid these charges. The solution, however, is not to abandon a valuable mechanism but rather to fix the problems with it.

The simplest way to do this is to ensure instead that DNSPs do receive the avoided TUoS charges. One possible mechanism is for TNSPs to rebate avoided TUoS charges directly to DNSPs that are making TUOS pass-through payments to DG providers. In practice, this could be effected through an explicit reduction in TUoS charges paid by the DNSP. These avoided TUoS payments would need to be explicitly excluded from subsequent recovery by the TNSP through the operation of the 'unders and overs' account as applies under the TNSP revenue cap.

We recognise that, in principle the TUoS pass-through rule could be replaced with a requirement for DNSPs and TNSPs to consider non-network alternatives and to pay network support payments to DG and DSR proponents. In practice, however, there is little prospect of such an alternative arrangement being effectively applied. For such an approach to succeed, it is essential that the full range of benefits arising from DG and DSR projects are able to be captured by their proponents; these include improved supply reliability through generation diversity, improved power quality and reduced transmission losses, reduced greenhouse gas emissions, avoided distribution and transmission network augmentation costs and the ability to more efficiently provide electricity at times of peak demand, through a combination of network support payments and efficient and effective price signals via feed-in and demand reduction tariffs. If and when such an effective alternative arrangement is put in place then the need for the TUOS pass-through rule could be reviewed.

There is also an urgent need to streamline the calculation of the level of TUOS pass through to be paid. Currently, this process typically involves protracted and inefficient negotiations between the DNSP and the DG proponent which, even where they are eventually resolved, usually result in DG providers receiving only a fraction of the average TUOS charge. If the direct recovery by the DNSPs of avoided TUOS charges were to be resolved as suggested above, then a pass through to DG providers of the full average value of TUOS charges could be adopted as the default in place of long-winded negotiation.

2. Minimum technical standards for connections to the network may provide a barrier to potential embedded generation options

ATA recommends that the requirement for DNSPs to develop and make publicly (and readily) available comprehensive information pertaining to connection be extended for all embedded generators up to 100kW. We strongly believe that the potential for growth in embedded generation applications in this classification band should be encouraged, with clear, standard information and less onerous regulations than for embedded generation greater than 100kW.

For smaller systems, up to 10kW (single phase) or 30kW (three-phase), connection to the grid is already heavily regulated, with Australian Standard *AS 4777.3 Grid connection of energy*

systems via inverters - Protection requirements providing adequate checks and safeguards against the potential for PV systems to be feeding electricity into the grid in the event of grid failure. Further, all electrical equipment installed under these Standards must comply with extensive additional Standards and electrical safety regimes.

As a result, significant checks and balances against adverse effect on the grid of small scale micro generation such as solar PV already exist. In fact, when considering the capacity of an average sized solar PV system is in the order of 1.6kW which, due to the capacity being less than the demand of an average hair dryer or toaster, effectively could be argued that such generation acts as a form of demand reduction to the local network.

Further, ATA believes that, for generators over 30kW, network connection arrangements are a significant issue. For this class of generators uniform standards may be more difficult to develop and implement as requirements will vary depending on network characteristics of a specific location and the generation technology being deployed.

For the class between 30kW and 100MW we believe some form of standard connection arrangements should be implemented, however in this case there needs to be some degree of flexibility to take into account variation in circumstances. More importantly, however, should be the development of a low-cost dispute resolution authority. This will ensure connection standards balance the needs of DG proponents and DNSPs.

3. Deep connection costs to the network may be a barrier to potential embedded generation options

ATA supports the prohibition on DNSPs from charging DG proponents either upstream, deep connection costs or positive DUoS charges, with the allowance for voluntary payments where upstream augmentation will increase the energy transfer capabilities of the DG installation. However, in order to ensure neutrality in the application of any network supply constraint applied by DNSPs, we would recommend that any network constraint algorithms used by DNSPs be submitted for approval by the AER. These algorithms should be open and transparent, and subject to challenge by the DG proponent through a predetermined dispute resolution process.

We accept the principle for EG proponents to pay for dedicated assets, as well as any extension costs related to their direct connection to the distribution network. This is in line with the National Electricity Rules and existing arrangements with present generators. However significant concerns arise surrounding the inappropriate allocation of network augmentation costs to EG. It is essential that the Rules don't penalise proponents of EG by expecting them to pay for more than specific connection costs. That is EG proponents should not be required to subsidise the existing transmission and distribution networks by paying deep connection costs, in contrast to established (large) generators that are paying only shallow connection costs.

The current system allows for new, large generators to pay only shallow connection costs, that is, to cover the costs of assets directly required by a new connection. This applies equally to large, remote generators as to those situated closer to load points. However the draft Code proposes levying charges on EG proponents for any distribution network augmentation required as a result of the additional load generated by the EG (deep connection costs). This contravenes the general principle and precedence of paying shallow costs and, moreover, the spirit of "open access" the NEM is based on. It also ignores the EG benefits of improved supply reliability through generation diversity, improved local power quality, reduced losses and reduced greenhouse gas emissions.

Whilst an argument exists for charging generators for more than just the costs associated with their connection into the system if there were no established network system, as there would be no conduit for the generators to sell their product, it is particularly disturbing that there presently exists a significant differential between levelling charges at major large-scale generators and embedded generators.

The most satisfactory and equitable arrangement – to honour the spirit of open access – would be for deep connection costs to apply only to large generators entering the system. If the NEM is truly designed to assist the entry of a variety of types of energy and participants, then small and/or local generators should not be expected to foot the bill for supporting large, remote generators which are usually powered by fossil fuels. It is manifestly unreasonable to force a small, local generator to pay the full extent of deep connection costs when it may only be adding a minor extra load to the network, or in fact reducing load.

4. Contracting arrangements for embedded generation may not reflect the network support benefits that can be provided

ATA supports the development of standard terms and conditions for the connection of EG which is compliant with AS 4777.3, as well as the vetting by the AER and incorporation into the Rules of DNSPs' standard agreements. This is required to ensure that such agreements are not overly onerous and don't place unnecessary burdens upon the EG proponent. Such agreements should be made public and readily available, providing greater certainty and clarity for proponents of EG. This would provide greater certainty for proponents of domestic and small-commercial scale embedded generation units.

Further, we believe that the development and implementation of a Code of Practice for Embedded Generators would go some way to addressing the concerns around impracticalities of negotiating grid connection terms and conditions for all small-scale DG, as well as overcoming a number of additional barriers faced by proponents of these technologies.

The development of a Code of Practice for Embedded Generators is addressed in a joint submission by the Climate Action Network of Australia (CANA) in response to the PB

Associates Consultation Paper of February 2006 on a Draft National Code of Practice for Embedded Generation², much of which is relevant to this Issues Paper.

Additional barriers confronted by EG proponents are both the existence of information asymmetries between proponents and networks as well as the market power exhibited by the DNSPs. ATA believes that these should be addressed by the establishment of an independent authority able to process connection of distributed generators. Such an authority would be able to provide information to connection applicants on their responsibilities as well as undertake power systems analysis work and evaluation of the proposed connection. Further, a low-cost dispute resolution body would be able to address exhibitions of monopoly power by the DNSPs when negotiating connection agreements.

Further Contact

ATA again welcomes the opportunity to respond the Australian Energy Market Commission's *Review of Demand-Side Participation in the National Electricity Market Stage 2: Issues Paper*. We would welcome the opportunity to discuss any aspect of this submission further. Please direct any questions or further correspondence to Brad Shone, Energy Policy Manager, on 9631 5406 or Brad.Shone@ata.org.au

Yours sincerely,



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² CANA submission available from:
<http://www.mce.gov.au/index.cfm?event=object.showContent&objectID=683FF2CD-AAA6-8246-0564E23C4A8589DC>

Attachment A – Impediments to Grid connection of Solar PV

A summary of the key impediments include:

- A return on investment – of up to \$30,000 – in solar PV systems that remains meagre despite the many benefits these systems produce. Some system owners can face the indignity of *bigger* electricity bills from their retailer (due to higher tariffs for the minimal electricity purchased) following their investment.
- A lack of information that can assist system owners negotiate and undertake what is often an unnecessarily technically and administratively complex process.
- Unnecessarily complex technical regulation which discriminates against system owners.
- An economic regulatory framework which provides:
 - little incentive for retail or distribution businesses to actively encourage small renewable embedded generation. This is evident from the amount and type of information provided by energy utilities, the generally unsatisfactory level of customer service and inconsistency with which system owners are dealt with.
 - minimal protection for system owners. This includes allowing retailers to remove standing tariff offers and compulsory reassignment of tariffs to grid connected system owners.
 - Market failure which discriminates against solar PV and fails to recognise the true value of electricity that solar PV systems produce during hot summer periods. While electricity costs can reach as high as \$10,000 per MWh on the wholesale market, solar PV system owners are not rewarded accordingly for electricity they export during these periods.
- Minimal consistency in the treatment of system owners negotiating grid connection.
- Unnecessarily high charges for interval metering which currently provides little financial return – due to a lack of corresponding interval tariffs – to system owners.
- Some distribution businesses demanding gross metering (despite poorly drafted and ambiguous codes which attempt to stipulate otherwise).

The full report can be accessed at <http://www.ata.org.au/projects-and-advocacy/barriers-to-solar-grid-connection>