

21 July 2011



Jemena Electricity
Networks (Vic) Ltd
ABN 82 064 651 083

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

321 Ferntree Gully Road
Mount Waverley VIC 3149
Locked Bag 7000
Mount Waverley VIC 3149
T +61 3 8544 9000
F +61 3 8544 9888
www.jemena.com.au

National Electricity Amendment (Inclusion of Embedded Generation Research into Demand Management Incentive Scheme) Rule 2011

Jemena Electricity Networks (**JEN**) welcomes the opportunity to provide comments on the Australian Energy Market Commission's (**AEMC**) consultation paper on *National Electricity Amendment (Inclusion of Embedded Generation Research into Demand Management Incentive Scheme) Rule 2011*.

On 4 November 2010, the Ministerial Council on Energy submitted a Rule change request to the AEMC. The request follows the AEMC's Final Report on the Stage 2 Review of Demand Side Participation in the National Electricity Market. The Rule change seeks to initiate three separate Rule changes.

One of the Rule change seeks to expand the Demand Management Incentive Scheme (**DMIS**) to include incentives for innovations in connection of embedded generators – specifically incentives for innovation in connection of embedded generators.

JEN welcomes the proposed rule change as it clarifies that research into embedded generation technologies can be funded under the DMIS.

JEN's detailed response to the Rule change is set out in Attachment 1.

Should you have any questions in relation to the information provided, please contact me on (03) 8544 9442 or siva.moorthy@jemena.com.au.

Yours sincerely

Siva Moorthy
Manager Network Regulation

Attachment 1

The paper notes that DNSPs have a strong focus on reliability and safety, and a weak incentive to encourage embedded generation and demand management. The strong focus on reliability and safety generally leads to DNSPs' preference for network solutions that provides low risk and high performance and a reasonable return on investment. A Rule change that provides stronger incentives to encourage embedded generation and demand management may lead DNSPs to change their current approach.

The paper states that DNSPs are freely given discretion to develop connection standards for embedded generators and that the cost of compliance with these standards is being borne by the generator and this may represent a hurdle. JEN contends that the connection standards of the DNSPs are there to ensure reliability and safety are not adversely affected. There may be differences in connection standards adopted by different DNSPs, influenced in part by different risk approach.

JEN considers there are opportunities to standardise connection standards. The Demand Management & Embedded Generation Committee of the Energy Networks Association is in the process of developing embedded generation connection guidelines that will assist in standardisation across Australia. If designers and manufacturers can develop equipment to comply with these standards then considerable cost savings could be achieved by reducing design effort and through economies of scale. Solar PV represents a good example where this has been achieved through the development of inverter standard (Australian Standard AS 4777) but this needs to be extended to other embedded generation technologies and generators of larger size.

Most Australian DNSPs do not have research departments or significant R&D budget. It is however more common to undertake trials of new technology or to work with Universities or other research bodies (such as the CSIRO) to develop solutions to specific problems. Research such as this may involve collaboration between DNSPs who provide both financial and in-kind support. DNSPs may initiate development of new standards, processes, communication and IT systems (e.g. signal to start generators, direct load controls, adjusting thermostat on air conditioners). Funding of such projects could provide benefits for the broader community including support of embedded generation and demand side response. This way of allocation of funds to projects could help increase the uptake of demand management.

Below are examples of how funds could be used to support innovation in the connection of embedded generation:

- a) Development of innovative technologies for embedded generator connection. It may include investigation into the risks that embedded generators may pose and identify connection standards that reduce these risks to acceptable levels. Connection costs may be reduced without compromising safety, but without research and evidence this is unlikely to happen.
- b) Research into allowing embedded generators to deliver local voltage regulation by generating or absorbing reactive power. For example, a change to solar inverter specifications could allow inverters to import or export reactive power to assist with voltage regulation with no change to hardware and only a change to inverter firmware. JEN is aware that RMIT University is already undertaking some research in this area and desires collaboration (and funding) with DNSPs.

- c) Research into the creation of micro-grids with load supplied from local embedded generation including electrical islands. This could provide higher security of supply by using embedded generation without requiring large investments in transmission and sub-transmission networks.
- d) Research into using reliable communications networks for control and monitoring of embedded generation while maintaining high standards of network performance (security, reliability and safety) while also relying upon embedded generators for network support. This could also include energy storage (for example using electric vehicles).

To evaluate the merits of the above ideas the Rule should permit some of the DMIA to be directed towards trials that are of R&D in nature without certainty of economic payback.

JEN's responses to specific questions posed in the consultation paper are set out below.

Prescription versus flexibility in applying the DMIS

To what extent do DNSPs currently seek funding for innovation in connection of embedded generators or other forms of demand management projects as part of their opex and capex proposals?

JEN has not proposed specific initiatives for DMIS in its 2011-15 regulatory proposal. This does not represent a lack of interest on demand management from JEN. JEN intends to make use of the \$200k pa allocated under DMIS to pursue small-scale pilots which would inform the cost/benefits of various approaches, before it takes the proposals to the AER in its 2016-20 regulatory proposal.

How effective is the existing DMIS framework for incentivising DNSPs to pursue innovation projects on embedded generators?

The existing DMIS framework appears to remove some of the short term risk associated with investment in demand management. However, it may not be sufficient to provide incentives for innovation in encouraging embedded generation because embedded generation does not just reduce peak demands but also reduces annual energy sales which have a larger impact on reducing long term revenue. Given that DMIS has only come into effect on January 2011 in Victoria, most Victorian DNSPs have not had an opportunity to fully evaluate opportunities as yet.

Level of DMIA and DNSP incentives to support embedded generation research

To what extent will the proposed Rule incentivise DNSPs to undertake more projects on finding cheaper ways to connect embedded generators? Is it likely to materially change the DNSPs existing incentives to pursue riskier and innovative trial projects?

JEN considers connection of embedded generation to its network to be a form of network demand management. This rule change is welcomed because it removes any lingering risk that investment in such projects as innovation in the connection of embedded generators may be disallowed under the DMIS. For the reasons listed above, there may still be some disincentives to pursue investment in programs to

encourage embedded generation and the proposed rule change does not address these.

What types of embedded generators are likely to benefit most from the proposed Rule change?

It is unclear what type of embedded generators stands to benefit most until specific projects are investigated.

Will the proposed Rule result in the need for increased funding for DMIS and hence require higher DMIA than the current level of allowances?

JEN has been provided \$200k pa for expenditure under DMIS for 2011-15. The proposed Rule change would not change the quantum of this allowance.

Is there likely to be any material financial impact on electricity consumers to fund the any increased DMIA resulting from the proposed Rule? How should this be weighed against the benefits of having embedded generators connected more cheaply?

The proposed rule change will not have immediate impact on electricity consumers as the DMIS allowance is fixed for 2011-15. In the longer term, the inclusion of embedded generation research into DMIS may increase the level of DMIS funding, but this is subject to AER approval. It is JEN's understanding that cost and benefit will be considered by the AER in its decision making process.