



**Clean Energy Council submission to the Australian Energy Market
Commission's Draft Report:
Distribution Market Model**

Executive Summary

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the Distribution Market Model Draft Report by the Australian Energy Market Commission (AEMC).

The CEC is the peak body for the clean energy industry in Australia. We represent and work with hundreds of leading businesses operating in solar, wind, hydro, bioenergy, marine and geothermal energy, energy storage and energy efficiency along with more than 4,000 solar installers. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The CEC welcomes the Commission's recognition that, in a future where the penetration of distributed energy resource is high, allowing regulated distribution network service providers (DNSPs) to take on a role in optimising investment in and operation of distributed energy resources would not provide a level playing field for market participants.

The CEC strongly supports the proposal to explore the prioritisation of capital expenditure (Capex) over operating expenditure (opex) and near-term actions that could help address this.

The CEC warmly welcomes the AEMC's proposal for it (or another party) to review the technical requirements that DNSPs apply to the connection of distributed energy resources.

In this submission we provide further detail on these issues and respond to the specific questions raised in the Draft report.

We would be very happy to discuss these issues in further detail with the AEMC. We look forward to contributing further to this review.

QUESTIONS FOR RESPONSE

1. Do stakeholders consider that there are any other barriers to the development and implementation of cost-effective network tariffs? How material are these barriers? Are there other means for them to be addressed?

Yes.

The key issue for tariff reform is to build public understanding and support. Consumers don't want electricity tariffs that make life more complicated. Cost-reflective pricing will be more successful the more it relies on automation technology and the less it relies on consumers, themselves, responding to changing price signals.

Behavioural economics research undertaken CSIRO¹ has concluded that,

"In all policy making around cost-reflective pricing it will be absolutely critical to distinguish what might promote uptake as opposed to effective usage of cost-reflective pricing. Anything that induces the former without also facilitating the latter will carry with it considerable political, economic and social risks."

It would be a mistake to move too quickly to mandatory reassignment to demand-based tariffs. Customers should be offered demand-based tariffs on an opt-out basis long before any moves toward mandatory tariff reassignment.

Customers need to be able to make informed choices. State and territory governments, regulators, networks and electricity retailers should continue to support the transition toward demand-based network tariffs by:

- Development of on-line tools from trusted sources to enable customers to compare their consumption profile against tariff offers. The Victorian 'My Power Planner' tool was a good example of this.
- Allowing customers the opportunity to gather at least 12 months' data from their smart meter before they are required to make a decision as to whether they will 'opt out' of a demand-based tariff.
- Supporting the continued uptake of automation technology for electricity demand management.

The Commission has proposed an approach for assessing whether a level playing field for the optimisation of investment in, and operation of, distributed energy resources is created, namely that the optimising function is carried out by an independent party that: does not have a specific interest in one or more of those services being provided (or in a particular way); and is exposed to financial incentives. These criteria seem reasonable. We note, however, that they have only been applied distribution businesses and that the suitability of

¹ K. Stenner, E. Frederiks, E.V. Hobman and S. Meikle, CSIRO, *Australian Consumers' Likely Response to Cost-Reflective Electricity Pricing*, 2015

other electricity market participants to undertake the optimising role has not been considered in the Draft Report. It would be useful if the Commission could either apply the same criteria to all electricity market participants or explain why those criteria only need to be considered in the case of distribution businesses.

2. Do stakeholders consider that there are ‘missing markets’ or ‘missing prices’ beyond those that will be implemented through cost-reflective network tariff reforms? If so, what are these?

Smart inverters with the capabilities required by the 2015 version of AS4777 enable distributed energy resources to provide grid support services. This opportunity is not limited to small rooftop systems and could include all exempt generation (up to 5 MW) and even non-scheduled generation (up to 30 MW), which may or may not be connected with loads.

What is needed now is a regulatory framework that makes explicit what capabilities can be demanded by distribution businesses as a condition of grid connection and which services should be paid for through a grid services market. The framework could consider what capabilities would be required to negate the potential impact a customer would have on the network and the capabilities beyond that, which should be considered as a grid service.

The CEC supports the development of new market platforms for grid services. We are concerned that in the absence of a regulatory framework for grid services distribution businesses will be in a position to demand those services as a condition of grid connection approval. Separation of the roles of asset ownership, maintenance and connection approval from the roles of market management and optimising investment in and operation of distributed energy resources would assist in resolving some of the anti-competitive conditions that currently exist.

3. Do stakeholders consider that an open access regime will continue to be appropriate in an environment of increasing uptake of distributed energy resources and more constraints on distribution networks? If not, what principles or considerations should be taken into account in determining whether a different access regime is more appropriate?

The principal of ‘open access’ is (arguably) already being constrained by grid connection requirements such as export limitation (noting that, depending on the size of the system, proponents may be faced with a decision as to whether to utilise export limitation devices or provide a capital contribution to alleviate network constraints).

Making use of smart inverter capabilities is part of the solution to maintaining open access in an environment of increasing uptake. Incorporating new inverter capabilities into uniform grid connection standards would benefit consumers and assist with system stability and reliability.

The Commission has not presented an adequate case, in our view, to justify the conclusion that the principle of 'open access' should be set aside in favour of a new access regime. The access regime should first be reassessed in light of recent technological advances.

4. Is there support for the Commission's proposal that the deletion of clause 6.1.4 of the NER be explored?

The CEC would not support deletion of clause 6.1.4 on the basis of the arguments put forward in the Draft Report. We would, however, we keen to participate in any reviews to explore the costs and benefits of such a proposal. The Draft Report's proposal for changes to the distribution use of system charges for supplying to the distribution network raises a number of questions, such as:

- Would the charge apply equally to all electricity supplied to a distribution network, including distributed energy resources, large embedded generators and power supplied by large power stations on the transmission network? If not, why not? If so, what other implications would there be?
- What is the problem being addressed and what other alternatives would address the problem?
- What are the costs, benefits and risks of this proposal?

5. Are there any other aspects of the development of Australian standards that are relevant and should be considered?

Yes.

There is an opportunity to improve standards, reduce inconsistent grid connection requirements, improve safety and reliability and reduce costs to consumers. What is missing is an institution of forum in which these proposals can be considered. The proposed AEMC review of the technical requirements that DNSPs apply to the connection of distributed energy resources could provide the forum needed to take advantage of the opportunities available.

We are pleased that draft report has updated the description of inverter requirements to acknowledge the changes arising from *AS4777.2:2015 Grid connection of energy systems via inverters – Inverter requirements*, which has been in effect since 9 October 2016. The updated inverter standard includes requirements such as reactive power capability, new voltage and frequency set-points and limits to be compatible with requirements of network businesses. The updated standards also require inverters to have Demand Response Mode (DRM) capabilities, which allow a remote operator to alter the inverter system to operate in a certain way, such as disconnecting from the grid, preventing generation of power or increasing power generation. This means that distributed energy resources utilising smart inverters have the capability to provide services to the network.

If distributed energy resources with AS4777.2:2015-compliant inverters are not supplying reactive power or other grid services it is not due to lack of capability. Rather, it is due to the absence of markets or other incentives for provision of grid services. Already some distribution businesses are mandating grid services (such as provision of reactive power) as a condition for connection to the distribution network. It would be helpful to develop an agreed methodology for determining:

- what is a reasonable grid service to expect as a condition of grid connection in order to address the impact of the proposed connection of a distributed energy resource and to enable higher penetration, versus
- what is a grid service for which the distributed energy resource ought to be financially remunerated?

Since the introduction of AS4777.2:2015 there have been further developments in inverter standards mandated as part of DNSPs' grid connection rules. For example, inverters that are tested to standards for active anti-islanding can address some of the impacts referred to in Box 2.1 of the Draft report. The international standard for active anti-islanding is known as IEC 62116. The CEC collects and publishes information on inverters compliant with IEC 62116. Compliance with this standard is now a requirement for grid connection for all systems in the Western Power network and for systems between 30 kW and 1,500 kW in the Energy Queensland (Ergon and Energex) networks. The CEC supported the new Energy Queensland requirements when they were introduced because they are expected to reduce the need for more expensive protection equipment.

The CEC supports moves to reduce costs by encouraging manufacturers to provide the Australian market with safer, smarter products. This is especially the case where issues of safety are concerned. However, capabilities such as volt-watt response, volt-var response, export limitation and demand response modes go beyond questions of safety and it would be useful for the AEMC to explore which grid services should be required as a condition of grid connection and which grid services ought to be paid for in future.

The CEC would support moves to further raise standards for inverter capability if they are accompanied by streamlining of grid connection rules so as to put more of the onus on manufacturers and less cost on consumers. There is currently no forum that can put into effect a 'trade-off' of higher standards for inverter capability in exchange for simpler and more uniform grid connection rules. The proposed AEMC review could consider these opportunities in greater detail.

6. Do stakeholders see value in the AEMC (or other party) reviewing the technical requirements that DNSPs apply to the connection of distributed energy resources?

Yes.

The review should aim to establish a nationally consistent set of grid-connection standards for distributed energy resources. It should review the different requirements being applied to behind-the-meter storage by electricity distributors and the rationale and reasonableness of the technical requirements being applied. It should also consider frameworks and incentives for the uptake of technologies that improve safety and reliability or reduce costs for consumers

The lack of clear and consistent grid connection standards applied by distribution businesses is an inhibiting factor to the efficient participation in any distributed energy market. Work conducted by the Energeia for the CEC during 2016 found that the current absence of a national approach to these standards leads to significant inefficiencies to the tune of around \$36 million per annum².

The establishment of nationally consistent grid-connection standards would ensure that the connection of distributed energy resources to the network are efficient, transparent and reasonable in terms of cost, technical requirements and timing. This would give investors and owners of distributed energy resources greater certainty about the nature and expectations of solutions as they are integrated into the energy system.

² Energeia, *Embedded generation grid-connection standards scoping study*, June 2016