



Clean Energy Council submission to the Economics and Industry Standing Committee inquiry into electricity microgrids in Western Australia

Executive Summary

The Clean Energy Council (CEC) welcomes the opportunity to provide input to the Economic and Industry standing committee inquiry into electricity microgrids in Western Australia.

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 5,000 solar installers. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

Western Australia is leading the nation on the use of microgrids. Trials in WA have already demonstrated that microgrids can supply electricity more cheaply, more safely and more reliably than the traditional 'poles and wires' approach.

This review provides Western Australia with an opportunity to continue its leadership role in the use of microgrids.

Opportunities could be maximised by moving from a 'pilot phase' to a more comprehensive program, which could involve undertaking an extensive assessment of where microgrids are expected to provide a superior service, ensuring opportunities for distributed energy resources (DER) suppliers to provide microgrid solutions, working with distribution network service providers (DNSPs) and establishing a regulatory framework to ensure delivery of agreed standards of reliability and consumer protections.

We would be very happy to discuss these issues in further detail with the Economics and Industry Standing Committee. We look forward to contributing further to this important area for policy development.

Responses to issues raised in the Inquiry's Terms of Reference

a) The potential for microgrids and associated technologies to contribute to the provision of affordable, secure, reliable and sustainable energy supply, in both metropolitan and regional WA

Microgrids offer a range of benefits which can provide assistance to regional and developing communities through the delivery of environmental benefits, economic advantages, and more reliable services.

Microgrids can supply electricity more safely and reliably while reducing network asset replacement and augmentation costs. In a state as large and as sparsely populated as WA, there will be many situations where off-grid supply will be cheaper than maintaining a grid connection. In these situations the efficient response is to allow and encourage network service providers to offer off grid supply as a regulated service. Moving to off-grid supply could also offer additional benefits such as improved reliability for remote customers and reduced bushfire risk.

Trials have demonstrated that microgrids can supply electricity more cheaply, more safely and more reliably than the traditional 'poles and wires' approach. The microgrid trial by Western Power has demonstrated the potential for reliability improvements through providing microgrid services. The Western Power case study indicates that the reliability of their stand-alone power system is far superior to the long rural feeder it replaced – see table 1, below.

Table 1 - Supply reliability of network versus stand-alone power system (July 2016 – July 2017)

Site No	Network		SPS	
	Number of outages	Hours	Number of outages	Hours
SPS-01	20	72.19	1	14.95
SPS-02	20	72.19	0	0
SPS-03	20	72.19	0	0
SPS-04	19	71.87	1	6.73
SPS-05	19	71.87	2	2.78
SPS-06	10	57.24	2	3.48
Average		69.59		4.66

Source: Western Power (2017), *Stand-alone Power System Pilot, One Year On*, p.6, available at <https://westernpower.com.au/about/reports-publications/stand-alone-power-system-pilot-one-year-on/>

Horizon Power has also seen reliability improvements through the provision of microgrid services, reducing power outages in the remote WA township of Marble Bar from an average of about 38 minutes a year to less than 8 minutes a year¹.

Use of microgrids can improve the resilience of the grid overall, by limiting the areas affected by major faults on the network through islanding microgrids from the main network and switching to use of local generation and storage. Development of new microgrids provides an opportunity to upgrade to smarter technology that is better able to accommodate changing consumer preferences and new technologies.

Use of microgrids can reduce electricity costs for all consumers. Western Power has estimated a further potential net benefit of \$388 million that could be realised by providing off-grid power supply to 2,702 candidates on its network². Local generation avoids transmission losses and the additional reliability and resilience of the grid reduces costs associated with unexpected outages.

The pilot scheme conducted by Western Power has demonstrated that microgrids improve customer choice and satisfaction.

Use of microgrids also assists in stimulating local economic opportunities through the use of local suppliers for local investment, procurement, construction and maintenance.

b) Opportunities to maximise economic and employment opportunities associated with the development of microgrids and associated technologies

WA has a unique opportunity. Because WA is not constrained by the rule changes determined by the Australian Energy Market Commission (AEMC) it is able to innovate and proceed in advance of the Eastern states of Australia.

We note that there have been a number of successful pilot projects to date in WA, undertaken by Western Power and Horizon Power, in collaboration with project partners including Synergy, Lend Lease, Carnegie Clean Energy, Curtin University, the Australian Renewable Energy Agency (ARENA) and local businesses.

Building on the success of these pilot programs, it is now time to maximise the economic opportunities of microgrids by moving from the 'pilot phase' to a more comprehensive program. A more comprehensive program could include:

- Undertaking an extensive assessment of where microgrids are expected to provide a superior service to traditional 'poles and wires',
- Ensuring opportunities for distributed energy resources (DER) suppliers to provide microgrid solutions, working with distribution network service providers (DNSPs),
- Establishing a regulatory framework to ensure delivery of agreed standards of reliability

¹ <https://onestepoffthegrid.com.au/a-tale-of-two-australian-microgrids/>

² Western Power submission to the AEMC review of the rule change proposal on 'Alternatives to grid-supplied network services'

c) Key enablers, barriers and other factors affecting microgrid development and electricity network operations

Uncertainty in the policies governing microgrids is impeding their development and use in the Eastern states. The ability of WA to innovate outside of the rules of the National Electricity Market (NEM) is an advantage that can be leveraged for economic and social benefits of all Western Australians.

WA took a leadership role in national microgrid policy when Western Power submitted a rule change proposal to the AEMC, seeking support for allowing network service providers to provide microgrid or off-grid supply as a distribution service, which could then be subject to economic regulation. Fortunately, the fact that the rule change proposal was ultimately rejected does not present a barrier for WA DNSPs, given that energy policy in WA is independent of the NEM and the AEMC.

DNSPs need to be able to include microgrids as part of their regulated service in order for microgrids to compete on a 'level playing field' with traditional 'poles and wires'. As demonstrated in the graph below³, remote customers with an existing grid connection have no incentive to move off-grid on their own, as they do not face the full costs of maintaining the network assets, which are spread across all customers. An off-grid solution is only likely to eventuate if undertaken by the network service provider as an economically regulated service.



³ AEMC, Alternatives to grid-supplied network services, Final Rule Determination, 19 December 2017, Sydney Available at <https://www.aemc.gov.au/rule-changes/alternatives-to-grid-supplied-network-services>

In its determination on the Western Power rule change proposal, the AEMC highlighted the importance of putting in place reliability standards for microgrids to ensure that customers continue to have access to reliable electricity supply in the event that network service providers are permitted to provide microgrid or off-grid supply as a distribution service. The CEC agrees that a regulatory framework for reliability standards will assist with customer acceptance of microgrids and off-grid supply as an alternative to 'poles and wires'. We urge the Inquiry to consider whether the WA consumer protection framework and electricity supply reliability standards are 'fit for purpose' with respect to customers who are moved from 'poles and wires' supply to a microgrid supply. Customers should not be expected to move to off-grid supply unless it is offered to them at a price, and with protections, similar to those for electricity supplied via the traditional 'poles and wires' approach.

Some other aspects of consumer protection that ought to be available to customers supplied by microgrids include:

- Compliance with state safety regulations,
- Access to dispute resolution processes, and
- A means of ensuring that agreed standards of reliability are enforced.

The safety and reliability of the power supply should be maintained at the same or superior standards and the price of the electricity supplied should be no more expensive.

The established DNSPs can be expected to maintain safety and reliability standards in line with their existing operations. In future, however, there might be private operators of microgrids, who will be responsible for ensuring that state electrical safety requirements are met. There might be a need therefore, for registration or licensing of microgrid operators to ensure that they can be held accountable for meeting reliability standards.

Consumers who are supplied their electricity via alternative energy supply models (such as a microgrid) might not be able to easily shop around, change providers and utilise competitive tension. Price controls might be necessary to ensure that consumers within stand-alone microgrids pay a fair price for their electricity where there is a lack of competitive tension. Prices could be regulated by an organisation within WA, possibly a licensing regime managed by an organisation such as the Public Utilities Office (PUO).

A potential social barrier that could affect the development of microgrids in WA is a lack of consumer knowledge and familiarity. This information gap can be addressed through provision of information in the form of brochures, fact sheets, websites etc. WA is well placed to undertake such as education exercise, drawing upon the published results of a number of successful trials.