

Alternatives to grid-supplied network services

Response to AEMC Consultation Paper - ERC0215

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Executive summary

Energy Networks Australia welcomes this opportunity to provide a submission in response to the Consultation Paper *Alternatives to grid-supplied network services* from the Australian Energy Market Commission (AEMC).

Energy Networks Australia is the national industry association representing the businesses operating Australia's electricity transmission and distribution and gas distribution networks. Member businesses provide energy to virtually every household and business in Australia.

Energy Networks Australia supports further exploration and development of the distributor led transition from grid supply to off-grid supply where it represents the most efficient way of meeting networks' obligation to supply electricity to customers. An off-grid supply (either a microgrid or a stand along power system (SPS)) may represent a more cost-efficient overall supply solution than replacing current network assets. The ability for a network business to adopt an SPS or a microgrid solution in this circumstance has the potential to lower overall network costs, and therefore be in the long-term interests of consumers.

Where 'postage stamp' tariffs or uniform tariff arrangements provide significant subsidies to regional and remote customers, it is unlikely that these customer will actively seek to adopt an off-grid supply solution because they do not face the true cost of providing the network connection. In these circumstances, alternative SPS and microgrid delivery models could still be employed by the network provider to reduce the total delivered costs to all customers.

There is a gap in the existing regulatory framework in relation to off-grid supply in so far as an off-grid system that is disconnected from the main interconnected network in the National Electricity Market (NEM) would not fall within the definition of activities covered by the *National Electricity Rules* (NER). This restricts the efficient uptake of off-grid supply solutions by networks and may lead to detriments to consumers through higher prices and lower reliability and safety of electricity supply. It is likely that these detriments will grow over time if the deficiencies are not addressed.

Energy Networks Australia supports the evolution of the regulatory framework that would enable off-grid solutions and advance the following outcomes:

- » savings to all network customers by allowing movement to the most efficient delivery model in any circumstance;
- » equivalent consumer protections for grid and off-grid customers; and
- » realising other benefits such as reliability gains or bushfire risk mitigation.

Analysis, released by Energy Networks Australia and CSIRO, as part of the Electricity Network Transformation Roadmap also highlighted the need for regulatory arrangements to adapt to innovative delivery of services through microgrids and SPSs.

Current regulatory arrangements require network businesses to supply electricity services to an area via the interconnected national grid. The current regulatory framework may unintentionally preclude the provision of electricity services to customers via emerging technologies such as microgrids and SPS's - technologies which may, in certain circumstances, be least cost.

Energy Networks Australia urges the AEMC to consider the most appropriate way of removing the key regulatory and legal barriers from the efficient deployment of microgrids by networks. This rule change process has the potential for substantial benefits to be realised for all existing grid customers, while also improving service and reliability outcomes for customers served by new off-grid solutions.

Energy Networks Australia notes the complex issues presented in the Consultation Paper. In principle, customers moving to an off-grid supply should continue to benefit from the current regulatory framework mechanisms for the protection of grid-connected customers.

We note that a number of related processes are occurring concurrently, including the COAG Consultation on Stand-Alone Systems in the Electricity Markets, which deals with similar issues. We consider these processes are complementary and outcomes should be aligned, while noting it would be prudent to make changes to the rules without a delay.

Western Power rule change request

Drivers for the rule change

The continuing improvements in capability and efficiency of distributed energy resources provide significant opportunities for increased efficiency of electricity supply through microgrids and stand along power systems. Going forward, there are significant potential benefits to customers associated with the deployment of lower cost off-grid solutions to some regions, communities or customers.

Despite the potential benefits, the existing regulatory arrangements mandate network businesses supplying electricity services to an area by the interconnected grid. In its rule change request, Western Power estimates that SPSs could be deployed as a more efficient service to approximately 2,702 Western Power customers over next ten years, resulting in avoided expenditure of \$388m compared to replacing existing network assets.

In addition to lower costs, Western Power considers that SPSs as alternatives to replacing poles and wires in these areas of the network would also provide more reliable and safer outcomes for customers.

Communities served by Western Power do not currently fall under the NER. However, Similar opportunities exist in other regional and remote areas within the NEM, such as within parts of Queensland, New South Wales, Victoria South Australia and Tasmania.

Barriers in the NER that restrict the efficient uptake of off-grid supply solutions by networks may result in detriments to consumers through higher prices and lower reliability and safety of electricity supply. It is likely that these detriments will grow over time if the deficiencies are not addressed.

Need for flexible regulatory framework for off-grid supply

Energy Networks Australia supports an evolution of the regulatory framework that would enable off-grid solutions and facilitate the following outcomes:

- » savings to all network customers by allowing movement to the most efficient delivery model in any circumstance;
- » equivalent consumer protections for off-grid customers; and
- » realising other benefits such as reliability gains or bushfire risk mitigation.

An off-grid solution would fall outside of the current definition of ‘distribution service’ regulated by the AER under Chapter 6 of the NER. That definition refers to ‘a service provided by means of, or in connection with, a distribution system’, where a ‘distribution system’ is further defined as ‘A distribution network, together with the connection assets associated with the distribution network, which is *connected to another transmission or distribution system*’. (emphasis added). Similarly, the NER defines a DNSP as ‘a person who engages in the activity of owning, controlling, or operating a distribution system’, which again links the definition to connection with another transmission or distribution system.

Consideration should be given to the most appropriate way of removing the key regulatory and legal barriers from the efficient deployment of microgrids and SPSs by networks.

As already recognised in the existing framework including the *National Electricity Objective*, legislative pricing and revenue principles and the NER, network customers should pay no more than efficient or necessary for the delivery of regulated network services. This rule change process has the potential for substantial benefits to be realised to all existing grid customers, while also improving service and reliability outcomes for customers served by new, more efficient, off-grid solutions.

Roadmap evidence on potential consumer benefits

Energy Networks Australia and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Electricity Network Transformation Roadmap (the Roadmap) considered the potential role of off-grid supply as part of its modelled scenarios.

The Roadmap analysis finds that in a number of circumstances, standalone power systems and microgrids are likely to become a lower cost alternative to traditional grid supply arrangements over the next 10 years. In addition, the Roadmap finds that this transition can result in extra benefits such as reduced bushfire risk.

Energeia found that microgrids are most likely to be cost effective in the areas with the highest cost to serve, which are also the areas most subsidised under ‘postage stamp’ network pricing arrangements. These arrangements provide the same network tariff to rural and regional customers as urban customers and are often mandated in government regulation.

In urban areas, the introduction of alternative delivery models such as microgrids (for groups of customers) or SPSs (for individual customers) may be driven by a customer response to the economic cost of the network. However, where ‘postage stamp’ tariffs or uniform tariff arrangements provide significant subsidies to regional and remote customers, microgrid and SPS solutions are unlikely to be adopted by individual customers without changes to network cost recovery frameworks and pricing. Alternative delivery models like SPS and micro-grids may still provide a more efficient solution and, with a flexible regulatory framework, such solutions could be employed by the network provider to optimise the total delivered costs to all customers. However, this requires the removal of regulatory barriers to these alternative delivery models.

Ensuring efficient models of service delivery

Incentive and investment-related mechanisms

It is important for grid and potential off-grid customers that the regulatory framework does not constrain any delivery model that meets the needs of customers of the shared network. This is consistent with the incentive-based nature of the regulatory framework, which is designed to ensure that networks are delivering the service using the most efficient mix of inputs.

A range of existing and newly strengthened regulatory mechanisms incentivises networks to deliver off-grid solutions where this was distributor-led at the most efficient cost. For example, networks:

- » must demonstrate that proposed capital and operating expenditure programs are efficient;
- » have expenditure profiles that are subject to benchmarking to provide further assurance that proposed expenditure reflect efficient costs;
- » are incentivised by multiple schemes e.g. capital expenditure efficiency sharing scheme and the efficiency benefit sharing scheme to deliver least cost solutions;
- » are obligated to undertake regulatory investment test processes across a range of major new investments (noting recent AEMC rule change decisions that will broaden this range to replacement projects);
- » remain subject to a recently expanded range of ring-fencing and cost allocation obligations which further support incentives for efficient and non-discriminatory service delivery options.

We note that the *Replacement expenditure planning arrangements* rule change is currently being finalised by the AEMC. The AEMC's proposed rule requires to apply the RIT-D to network replacements, which is when it is likely to be most relevant to consider options for an off-grid supply.

Overall, Energy Networks Australia considers that the existing framework provides an appropriate means for identifying when replacement of existing lines by an off-grid solution results in a more efficient solution. It is also technology neutral insofar it does not specify any particular technological requirements for potential investment projects.

Competition issues and service delivery approaches

The rule change seeks to ensure the efficient delivery of network services (i.e. standard control services) to customers. The focus is on existing network-connected customers only.

As already recognised in the existing framework including the *National Electricity Objective*, legislative pricing and revenue principles and the National Electricity Rules, network customers should pay no more than efficient or necessary cost for the delivery of regulated network services.

For the reasons discussed above, the current rules framework does not provide sufficient flexibility in delivery to allow the network service provider to realise this outcome for customers.

Networks have a mandatory obligation to deliver services, and should have the capacity to use the delivery model best adapted to a diverse range of network and market circumstances to meet the needs of customers of the shared network.

As recognised in the Consultation Paper, many jurisdictions have uniform tariff policies. Uniform tariff policies are set at the retail level to ensure that rural customers pay no more than urban customers, even though their cost to serve may be significantly higher. Any shortfall between the actual costs to the network service provider and the amount paid for by consumers as network charges is subsidised by other, typically lower cost to serve customers living in urban areas.

While such cross subsidies may deter customers adopting a technological solution which would have a lower economic cost, it must be recognised that:

- this results from a deliberate and binding policy determination by governments rather than any constraint introduced by the monopoly service provider; and
- while it is theoretically possible that governments could introduce measures to remove such locational cross-subsidies, and require the introduction of nodal pricing in existing distribution areas, we see no sign of this occurring in the short-term. Such changes would bring significant complexity, and raise issues of social impact and equity.

In view of this reality, Energy Networks Australia considers the rules framework must provide sufficient flexibility to allow efficient service delivery and lower costs for all customers, within the tariff frameworks that are likely to continue in the foreseeable future.

We note this issue only arises in relation to fringe-of-grid customers. As these customers do not face the true cost of providing their network connection, it is unlikely those customers will adopt an off-grid supply solution as the potentially significant savings would benefit all network customers rather than themselves. Without changes of the kind proposed in the Western Power rule change, the network will be forced to implement a higher cost solution than could otherwise be achieved with higher bill outcomes for customers than necessary.

The Western Power rule change proposes that networks should be able to transition their remote customers to off-grid supply in circumstances where this is able to lower the costs for remaining grid customers, and to achieve service, quality and price outcomes that do not disadvantage off-grid customers. This is a balanced and pragmatic approach to delivering effective regulatory outcomes in the dynamic environment.

Reliability and consumer protections

Customers moving to an off-grid supply should continue to benefit from the current regulatory framework mechanisms for the protection of grid-connected customers, such as:

- » the obligation to supply the customer;
- » reliability and quality standards (noting that in individual cases these may require flexibility in application due to the particular characteristics of the off-grid solution);
- » dispute resolution procedures; and
- » access to retail offers.

Whether a customer is connected to the interconnected grid, or not, is clearly not the right basis for assessing their need for relevant consumer protections. All energy customers should receive a clear set of consumer protections that are appropriate for their circumstances, through a nationally agreed and funded framework.

We note that changes to the definition of distribution service to allow off-grid supply measures such as SAPs or microgrids to replace current network assets is likely to cause a range of flow-on impacts on customer protection and reliability standards which these customers currently experience.

The *National Energy Retail Law* (NERL) (South Australia) Act 2011¹, states that insofar

¹ National Energy Retail Law (South Australia) Act 2011 Division 2—Application of law—electricity 16—Application of law.

as the NERL applies to electricity, the NERL (South Australia) will only apply in relation to the sale of electricity to customers whose premises are connected, or to be connected, to the interconnected national electricity system within the meaning of the NEL.

Currently, only Queensland and the ACT have extended the NERL protections to microgrids. In other jurisdictions, were this decision taken, each state's NERL Application Act's will require amendment to extend the consumer protections currently available to interconnected customers to microgrids or SAPS customers. Similarly, some State based reliability and performance licence conditions for electricity distributors may also need to be revised to include provisions for microgrids and SPS.