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Committee Secretary
Standing Committee on Environment and Energy
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Dear Committee Secretary

Inquiry into modernising Australia's electricity grid

AusNet Services welcomes the opportunity to contribute to this inquiry into the future of Australia's electricity grid.

The electricity sector has begun an industry-wide transformation. Over coming decades, old generation technology will be replaced, and households will continue to invest in solar PV. With the rise of smart technology and ownership of batteries and electric vehicles, the potential for demand response is quickly expanding.

In this environment of rapid change, the policy and regulatory framework must keep up.

AusNet Services is Victoria's biggest and most diverse utility business, owning electricity transmission and distribution networks, and a gas distribution network. In addition to regulated energy networks, AusNet Services also operates a commercial business that provides a range of services across the energy supply chain. AusNet Services sees its purpose as empowering communities and their energy future.

AusNet Services supports and has contributed to the submission of Energy Networks Australia to this inquiry. The submission below is in two parts:

- the first is focused on the collective interest of electricity consumers and ways that policy may support customers' interests as transformation of the electricity sector takes place; and
- the second outlines a number of AusNet Services' grid modernisation projects, including lessons and policy implications from those projects.

This review is one of many currently looking at aspects of energy policy. AusNet Services has made submissions to many of these, including the Review of the Future Security of the National Electricity Market (NEM) being headed by Australia's Chief Scientist, Alan Finkel. We do not seek to repeat those submissions here.

THE COLLECTIVE INTEREST OF ELECTRICITY CONSUMERS

As the electricity sector changes, it is important to understand the impacts on energy customers as a whole, and on ways that changes will impact specific groups of customers differently.

One of the chief concerns in relation to grid modernisation is that new developments in the electricity sector could leave some customers behind, forced to shoulder an increasing share of the costs. Specific scenarios that warrant focus include:

- *Grid defection* – whereby some customers choose to disconnect from the grid and purchase alternative sources of energy (e.g. a combination of battery storage and local generation such as solar PV). Customer disconnections will generally raise the cost of electricity network services to remaining customers. This is because there are little savings from having fewer customers connected to an existing network, and the costs of the system have to be recovered from fewer people. Because not all customers will be able to go off-grid (e.g. due to financial constraints, or because they rent or live in an apartment), trends that see significant numbers of people going off-grid will raise the costs to certain customers, including disadvantaged and low-income customers;
- *Cross subsidies* – New developments in the electricity sector could also lead to a redistribution of who pays for network services. This is because the combination of legacy tariffs with new technologies that allow people greater control of their electricity use will enable some people to reduce their bills by more than they reduce the costs of the services they are using, by transferring their fair share of system cost onto others.

There are a large number of advocates of change, mostly wanting a better deal for their particular technology or product, or for their particular subset of consumers. Almost all of these advocates do not concern themselves with whether what they are seeking is in the interests of all customers. In many cases, those seeking favourable treatment are basically asking for other customers to pay more.

Historically, electricity networks have been required to operate under a set of rules that maintain certain policy objectives (e.g. universal access to electricity at a price that is not determined by the customer's location). Part of the compact of operating a regulated monopoly is to deliver service in a manner consistent with the National Electricity Objective or National Gas Objective, both of which stress the long-term interest of customers.

A critical step to ensuring grid modernisation delivers benefits to all customers is adopting a fairer method of pricing electricity. Current pricing structures are a legacy of another era, and as customers are gaining genuine control and choice over their energy consumption and production, it becomes more urgent that pricing reflects the benefits that can be delivered by exercising that control to help the whole system. Put simply, our current pricing structures do not encourage new technology adopters to act in a way that benefits others; indeed there is often an implicit incentive to force costs onto other customers. This can be easily remedied to encourage those who use new technologies to do so in a way that saves them money and reduces costs for everyone else at the same time.

Networks can also play a role in the coordination of customer resources. Allowing networks to provide services where they are the most efficient option is in the interests of customers. This may include new energy services (e.g. Distribution System Operator, or metering data owner).

AUSNET SERVICES AND GRID MODERNISATION

AusNet Services is at the forefront of energy network transformation. Recent illustrations of AusNet Services' projects highlighting the possibilities from modernisation of the grid include:

- *Mooroolbark Mini Grid Project*¹ – a trial of a local energy system made up of individual customers that have the capability to generate, store and export power, integrated with a control system enables these customers to operate as a unified energy community. This trial is helping AusNet Services understand how to benefit from and adapt to a future in which we support our customers' diverse energy choices, which are turning the electricity grid from a one-way pipeline to a multi-directional web, while operating our network as efficiently as possible.
- *Yackandandah Community Energy Project* – a staged community mini grid solution is being implemented in the town of Yackandandah to help the community to achieve their vision of using 100% renewable energy. Initially, most community members are choosing to install solar and Ubi (a smart sub-meter device). By monitoring home energy with Ubi, AusNet Services is helping people to buy batteries that best suit their energy use when it is economical to do so. Once people in the community have batteries, Ubi can facilitate power sharing in the community mini grid. The current energy market and tariff structure do not support energy sharing. The community understand this and are exploring ways they could establish a community retailer to facilitate energy sharing with the support of their local council.
- *Beaconsfield Test and Demonstration Facility* – this site allows AusNet Services to trial new technologies before they reach scale in the real world. Research to date has focused on questions of how the interactive grid of the future will operate, including the effects of remotely controlled appliances, and solar integrated with quick response batteries.
- *Smart grid initiatives* – AusNet Services is using analytics to deliver benefits from the data available from the advanced metering infrastructure which have been installed across our electricity distribution network. An example of one tool that has been developed is the Solar Alert, which alerts customers when their solar system stops exporting to grid when it would usually be expected to. This service allows customers to minimise lost production time by alerting customers to the need to identify and resolve any technical glitches in their system.
- *Grid Energy Storage System (GESS)* – Australia's first trial of a grid scale battery providing support to the network as an alternative to building new traditional network assets, improving power quality and increasing network supply reliability. With the trial now complete, a project is underway to relocate the battery to a location in our rural network where it will deliver supply reliability benefits.
- *Rapid Earth Fault Current Limiter (REFCL)* – a new application of technology to reduce bushfire risk and enhance community safety.
- *Remote Area Power Systems (RAPS)* – investigating the use of improved distributed energy resources (batteries and generation) to deliver comparable (or more reliable) electricity supplies to certain customers at a lower cost. At this stage only a concept due to regulatory barriers.

¹ <https://www.ausnetservices.com.au/Community/Mooroolbark-Mini-Grid-Project>

The diversity of these projects highlights the extent of opportunities that are being created by innovation, with potential benefits for customers, community safety, the environment, and energy network productivity (leading to lower prices).

A number of policy implications have emerged from these innovative projects:

- In the current dynamic environment for the energy sector, change will be a constant. This creates uncertainty for all participants in the sector, and there will need to be greater flexibility in regulatory arrangements to allow new technologies and service models to be trialled.
- Projects have also highlighted constraints in the existing regulatory framework to some of the innovative developments in energy, slowing customer access to the types of services they would like to see. Examples include:
 - Difficulty in establishing a community retailer, including licencing arrangements and tariff options.
 - Inability to access new types of network tariffs (i.e. fairer tariffs that reward more efficient use of energy and distributed energy resources). In practice opt-in models for new tariffs are not reaching large numbers of customers.
 - Stringent approaches to 'ring fencing' regulation of regulated networks will potentially block networks from aiding consumers in the transition. This includes preventing remote area power systems being deployed.

Sincerely,

Katie Yates
Energy Policy Manager
AusNet Services