10 November 2025

Energy Efficiency and Conservation Authority

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Submitted via email: STAR@eeca.govt.nz

To whom it may concern,

Electricity Networks Aotearoa (ENA) is the industry membership body that represents the electricity distribution businesses (EDBs) that take power from the national grid and deliver it to homes and businesses (our members are listed in Appendix B).

EDBs employ over 7,800 people, deliver energy to more than two million homes and businesses, and have invested $6.2 billion in network assets over the last five years. ENA harnesses members' collective expertise to promote safe, reliable, and affordable power for consumers.

We welcome the opportunity to provide feedback to the Energy Efficiency and Conservation Authority (EECA) on its green paper *Unlocking the potential of demand flexibility – a residential product perspective* (the paper).

ENA believes that the incentivisation, adoption and use of demand flexible products in the residential setting will be critical to ensuring that EDBs can access non-traditional solutions to network capacity constraints (NTS). Access to cost effective and ubiquitous demand flexibility services will allow EDBs (and others) to manage the transition to a fully electrified economy – especially in the residential context – as cheaply as possible, which will in turn help to mitigate potential price rises in the provision of electricity network services.

EDBs are largely agnostic as to the specific residential end-use-products that may collectively allow for a range of demand flexibility services to be offered to them, as we do not see EDBs having an enduring role in contracting these services directly from consumers. However, given the criticality of demand flexibility services, we have provided some limited feedback to EECA on their paper as Appendix A of this submission.

We're very happy to discuss this subject further with EECA, if that would be of use to you. Please contact Richard Le Gros, Policy and Innovation Manager (richard@electricity.org.nz), in the first instance.

Yours sincerely

Richard Le Gros

Policy and Innovation Manager

Electricity Networks Aotearoa

Appendix A: ENA feedback to EECA paper

Key end-use products and approach to commercial and industrial

Q1. The main use cases for demand flexibility presented in this paper are: managing peak demand (generation and line capacity) constraints, optimising renewable energy use, and optimising home energy use.

- **Do you think these are the main use cases?**
- **What other use cases are there?**

A1. From an EDB perspective, demand flexibility – if viewed as encompassing demand response – could also be used to support emergency response to both local (i.e. distribution) network issues, and also national (i.e. system operator) transmission system issues.

Q2. In the residential sector, the following products have been identified as key end-use products for demand flexibility: EV chargers, heat pumps, electric hot water systems which use a storage tank, fridges/freezer, clothes washers, dishwashers, clothes dryers, inverters for solar and battery systems, and HEMS.

- **Do you think these are the key demand flexible end-use products in the residential sector?**
- **If not, what are the key products and why?**

A2. It is probably more useful to think about *attributes* of end-use-products that make them particularly well-suited to providing a demand flexibility capability, rather than identifying types of products on ad-hoc basis. Intuitively, these attributes are likely to be:

- Average and peak electrical demand
- Typical duration of operation (and hence presence of electrical demand)
- Scope of flexibility (i.e. delta between minimum and maximum demand, and ability to control this)
- Ability to receive and respond to appropriate command signals to change ('flex') demand

Having said this, we agree that EV chargers, heat pumps, hot water systems (with a storage tank), clothes dryers, inverters for solar and battery systems have these attributes. We are uncertain if fridges/freezer, clothes washers, dishwashers drive sufficient electrical demand to warrant the cost and complexity of introducing demand flexibility control schemes for these products.

In addition to thinking about the above attributes, it might also be useful for EECA to focus on devices that have a fixed installation such as heat pumps, dedicated EV chargers, hot water

systems, solar PV systems. The nature of a fixed installation visit, carried out by a suitable professional (e.g. an electrician) is a useful opportunity to introduce standardisation and requirements around demand flexibility capability. This opportunity does not exist to the same extent with 'plug and play' devices, such as clothes dryers, dishwashers, etc.

HEMS is an interesting case as it is not a source of significant demand in and of itself, it is a control mechanism for such devices. It might therefore be sensible to set HEMS apart from the other products that EECA have described here, perhaps in its own category. It could also usefully 'mop up' those plug and play devices that don't have a fixed installation process, obviating the need for a more onerous set of requirements on these devices themselves.

Q3. Do you think a standardised end-use product/application-based approach is relevant for the commercial sector, or is a bespoke/customised approach needed?

A3. ENA has no special expertise in this area, but again intuitively we feel a bespoke or customised approach will be most appropriate for demand flexibility in the commercial sector.

Q4. What do you think the key end-use products/applications are in the commercial sector?

A4. ENA has no comment to make.

Q5. Do you think a standardised end-use product/application-based approach is relevant for the industrial sector, or is a bespoke/customised approach needed?

A5. ENA has no special expertise in this area, but again intuitively we feel a bespoke or customised approach will be most appropriate for demand flexibility in the industrial sector.

Q6. What do you think the key end-use products/applications are in the industrial sector?

A6. ENA has no comment to make.

Q7. What are the barriers to the uptake of demand flexible technology?

A7. A key enabler of the uptake of demand flexible technology is an obvious and reasonably immediate benefit for doing so. We have seen consumers respond positively to time of use tariffs that incentivise off-peak residential EV charging – largely enabled through simple timers – and it is reasonable to assume that more sophisticated offerings, if appropriately incentivised, would see the uptake of end-use-products with demand flexibility capability. This in turn then, requires the key beneficiaries of a demand flexibility service (as suggested by the use cases outlined in the paper) must find a way to assign a value to the service and begin procuring it, in order to drive those incentives through to residential consumers.

From an EDB perspective then, a key barrier is lack of visibility of network conditions and constraints on the low voltage (LV) parts of their networks, where most residential consumers are connected. Improved access to smart meter data that gives visibility of power flows, etc on the LV network would in turn allow EDBs to more readily identify sections of those networks

would benefit from a demand flexibility service, at which point they could then seek to procure those services from third-party providers.

Likewise, visibility of the presence of a source of demand flexibility behind the meter would be invaluable for EDBs and others who may engage with such devices to provide a demand flexibility service. One possible way of achieving this is to expand the scope of the Electricity Authority registry so that it encompasses all relevant end-use products with a demand flexible capability. Focussing on those devices that require a fixed installation, and therefore an installation visit from a suitable installer, provides an opportunity for this critical information to be captured and provided to the registry.

End-use product level components for demand flexible capability

Q8. The paper describes the three main end-use product components for demand flexible capability as: communication protocol, product response, and operational information.

- **Do you agree that these are the main components for demand flexible end-use products?**
- **What other components or considerations are important for end-use products?**

A8. ENA agrees that the main end-use-product competent identified in the paper are necessary for demand flexibility ability. We would also suggest that EECA consider the inclusion of attributes for demand flexibility *suitability*, as per our response to Q2 above.

Q9. Do you think to support the development and uptake of demand flexibility there is a need to create a minimum level of standardisation at an end-use product level (covering communication protocol, product response, and operational information)?

A9. ENA believes that, with the right incentives in place, in time multiple demand flexibility offerings will emerge. Over then further time, these would likely harmonise around a single or restricted set of communication protocols and capabilities. However, as described this would take some time to emerge and so there may be a case for EECA to create minimum levels of standardisation now, to 'short-cut' this process to some extent. This does carry the risk of unduly constraint competition and innovation through imposing some level of standardisation on the possible product offerings available in the market.

If EECA determines that a minimum level of standardisation *is* required and desirable, we encourage you to look very closely at the possibilities to adopt appropriate standards from other jurisdictions – most especially Australia. Few end-use-products are designed specifically for the New Zealand market, and it is unlikely that our electricity market and system settings are materially different from other jurisdictions, when it comes to enabling demand flexibility.

Development of demand flexible end-use products

Q10. Would you support EECA creating a voluntary approved list of residential demand flexible end-use products, similar to EV Smart Charger Approved List

A10. If EECA's EV Smart Charger Approved List has proven itself to be a useful initiative, and has been an aid to consumers, then replicating this for residential demand flexible end-use products would be a good idea.

Q11. Would you participate in working groups on the key end-use products to develop voluntary demand flexibility requirements (covering communication protocol, product response, and operational information)?

- **If so, what product based working groups would you like to be part of?**

A11. As noted in our responses above, we are less concerned with the specific devices that give rise to an aggregated demand flexibility service, than we are with the nature of the service itself. Nevertheless, if the distribution sector can be of assistance to EECA in this work were happy to arrange suitable representation on working groups.

Q12. If you are an end-use product supplier, would you manufacture/import/supply end-use products that meet the voluntary specification?

A12. Not applicable to ENA or EDBs.

Appendix B: ENA Members

Electricity Networks Aotearoa makes this submission along with the support of its members, listed below.

- Alpine Energy
- Aurora Energy
- Buller Electricity
- Centralines
- Counties Energy
- Electra
- EA Networks
- Firstlight Network
- Horizon Energy Distribution
- MainPower NZ
- Marlborough Lines
- Nelson Electricity
- Network Tasman
- Network Waitaki
- Northpower
- Orion New Zealand
- Powerco
- PowerNet (which manages The Power Company, Electricity Invercargill, OtagoNet and Lakeland Network)
- Scanpower
- The Lines Company
- Top Energy
- Unison Networks
- Vector
- Waipa Networks
- WEL Networks
- Wellington Electricity Lines
- Westpower