JANUARY 2026

Summary of submissions:

Unlocking the potential of demand flexibility

A residential product perspective

ENERGY EFFICIENCY & CONSERVATION AUTHORITY
TE TARI TIAKI PŪNGAO

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Purpose

This document summarises and provides a record of submissions received in response to the Energy Efficiency and Conservation Authority's Green Paper, *Unlocking the potential of demand flexibility – a residential product perspective*.

It sets out:

a. The number and type of submissions received.
b. The overall themes and key messages from submissions.
c. The next steps EECA will take to accelerate the uptake of demand flexible end-use products.

Background and consultation process

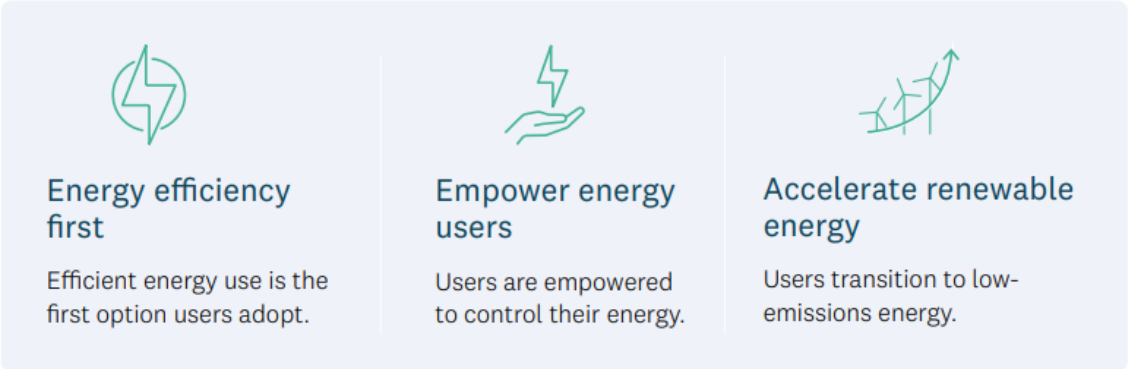
EECA's role is to encourage, promote and support energy efficiency, conservation and the use of renewable energy through regulating energy-using products, and providing information and incentives to support smart energy choices.

Modern technology has the potential to improve energy outcomes in New Zealand. Harnessing demand flexible end-use products will mean lower electricity bills at the household level, and at a system level, the impact can be even more significant.

Flexibility services play an important role in the energy transition. They can help to manage intermittent renewable generation and peak demand, addressing generation and network constraints. They support energy security and affordability as the electricity system continues to evolve.

Supporting the development and uptake of demand flexibility aligns with EECA's purpose and strategic focus areas. It enables electricity to be used more efficiently, supports effective use of renewable generation, and ensures consumers retain control over how and when they use energy.

Figure 1: EECA strategy



In October 2025, EECA consulted on a Green Paper exploring how to unlock the potential of demand flexibility from a residential product perspective. The Green Paper sought stakeholder views to help inform EECA's future work. It did not contain specific policy proposals.

The consultation included 12 questions, focused on:

1. Identifying key components of demand flexible end-use products.
2. Identifying the key residential end-use products.
3. Approaches to commercial and industrial applications and products.
4. Whether EECA should adopt an approach similar to the EV Smart Charger. Approved List | EECA for other end-use products.
5. Barriers to the uptake of demand flexible end-use products.

The Green Paper is available on EECA's website: Unlocking the potential of demand flexibility – a residential product perspective

For queries, contact star@eeca.govt.nz

Overview of submissions

A total of 25 submissions were received from a range of stakeholders. Most submissions were from New Zealand-based organisations, with two from Australian-based organisations.

Manufacturers provided the largest number of submissions (8), followed by associations (6), and Electricity Distribution Businesses (EDBs) (5).

Figure 2: Summary of submitters on Green Paper

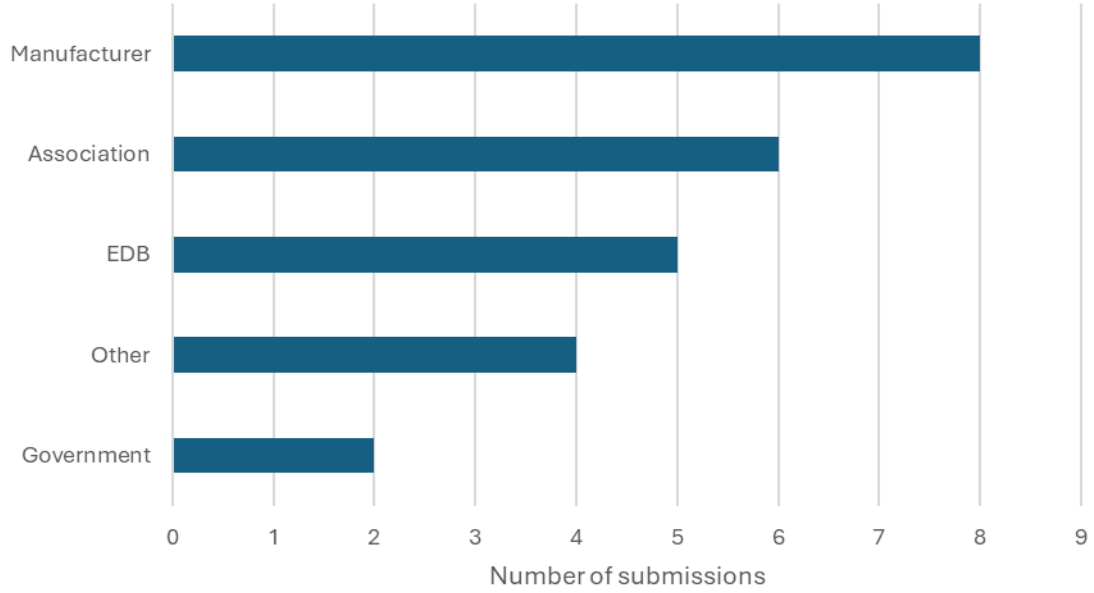


Table 1: Submitters on Green Paper

Submitter	Type
Electricity Engineers' Association (EEA)	Association
Electricity Networks Aotearoa (ENA)	Association
FlexForum	Association
New Zealand Green Building Council (NZGBC)	Association
Rewiring Aotearoa	Association
Sustainable Energy Association of New Zealand (SEANZ)	Association
Counties Energy	EDB
Orion	EDB
The Lines Company (TLC)	EDB
Unison Networks and Centralines	EDB
Vector	EDB
Transpower	Government
Worksafe	Government
Black Diamond Technology (BDT)	Manufacturer
Catch Power	Manufacturer
Daikin	Manufacturer
Dux	Manufacturer
Fisher & Paykel	Manufacturer
GridSmart/Rinnai	Manufacturer
Panasonic	Manufacturer
Rheem	Manufacturer
Auckland University	Other
Bluecurrent	Other
Genesis Energy	Other
Individual	Other

Full submissions are available on EECA's website.

Overall themes and key messages

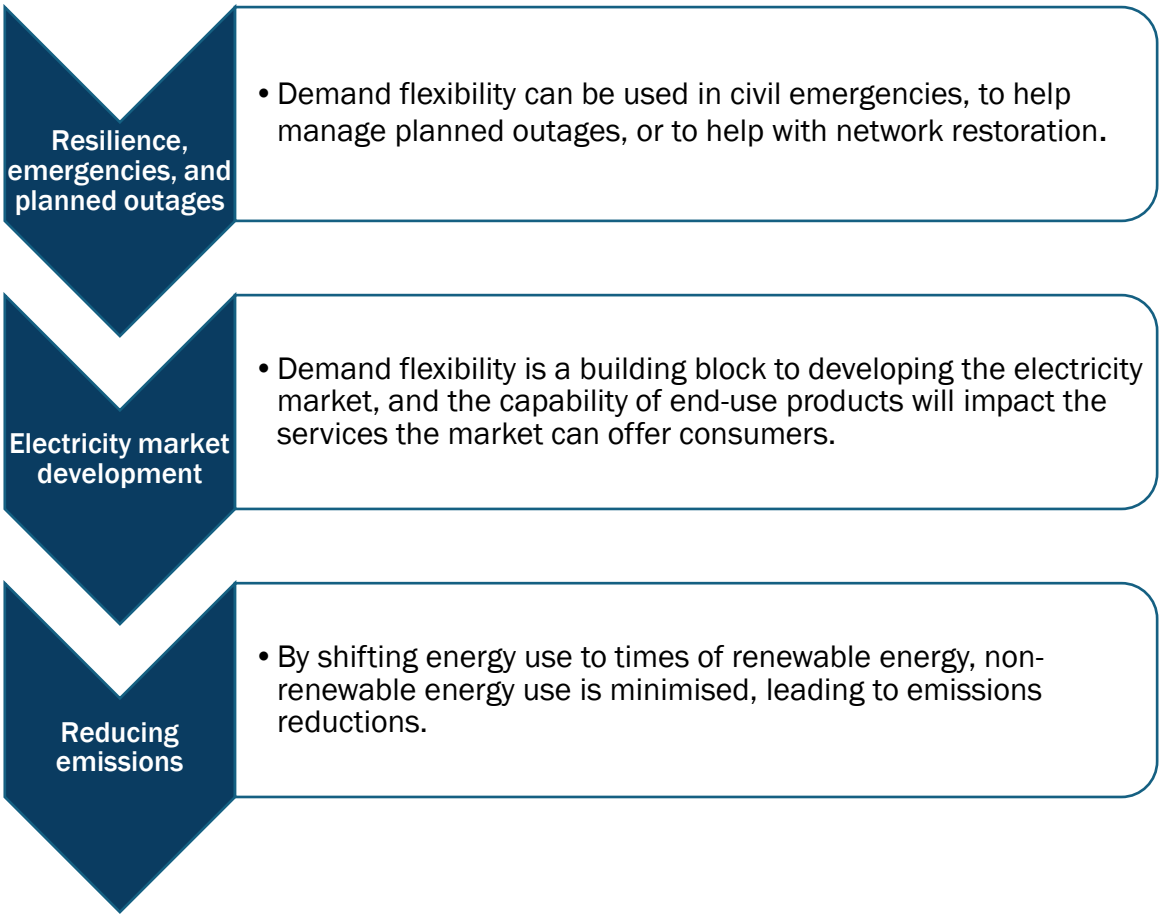
Main use cases for demand flexibility

The Green Paper identified three main use cases for demand flexibility:

- Managing peak demand (generation and line capacity) constraints.
- Optimising renewable energy use.
- Optimising household energy use.

Submitters agreed with these main use cases, but also suggested others:

Figure 3: Main use cases for demand flexibility



Submitters also noted that demand flexibility can lead to reduced energy costs and network connection costs, by optimising the use of the lowest-cost energy generation (renewables) and deferring network investment by managing peaks.

While not identified as a use case, many submitters stressed the need for a joined-up government approach involving EECA, the Ministry of Business Innovation and Employment (MBIE), the Electricity Authority (EA), and the Commerce Commission. There was also support for working with associations including Electricity Networks Aotearoa (ENA), Electricity Engineers' Association (EEA) and FlexForum. This recognises the complementary roles these organisations play across market development, product

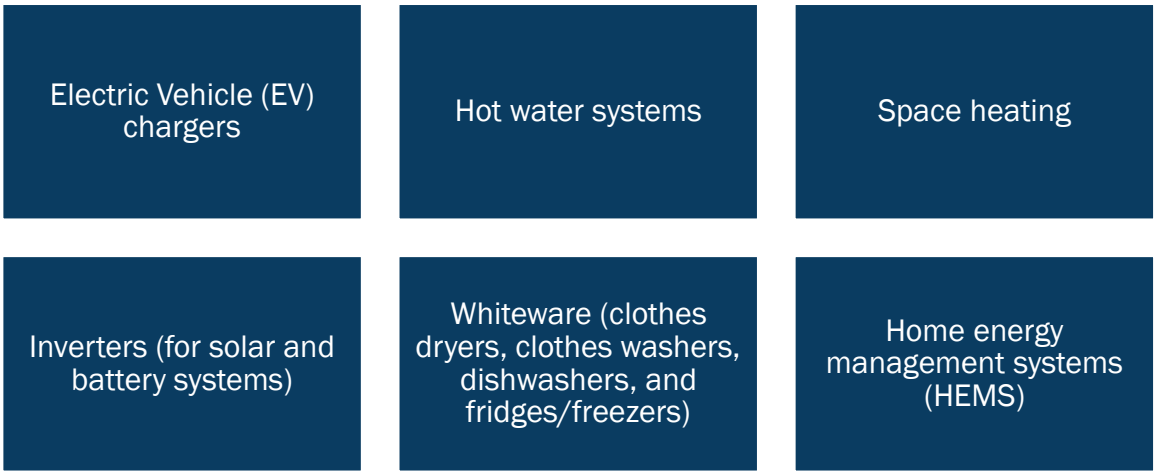
development and uptake of flexibility, and the need for all parties to work together to enable a flexible system.

To support coordination, EECA is developing a joint work programme with the Electricity Authority and the Commerce Commission. This work is intended to support a coordinated approach to the uptake of distributed flexibility and to improve outcomes for consumers.

Key residential end-use products and priority

The Green Paper identified a list of key residential end-use products based on annual energy use, power use, contribution to peak demand and potential for flexibility:

Figure 4: Key residential end-use products

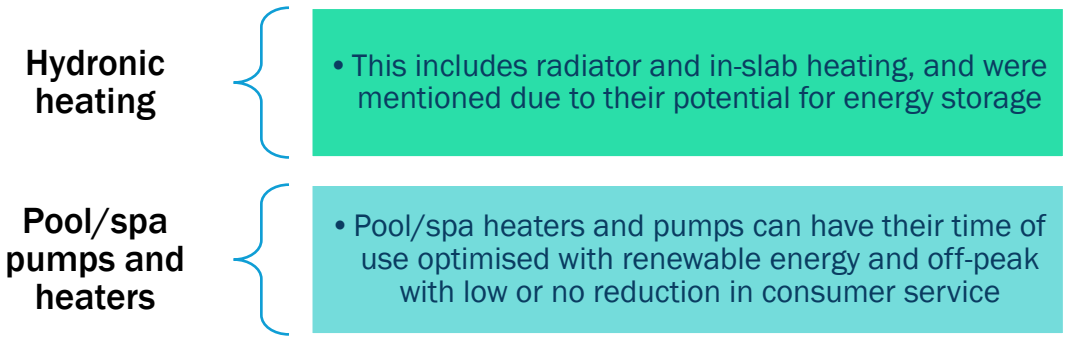


Submitters broadly agreed with the proposed list. EV chargers, electric hot water systems, space heating, inverters, and HEMS were consistently identified as higher-priority end-use products. Whiteware was generally seen as lower priority due to lower annual energy use and greater complexity in enabling flexibility.

Submitters emphasised that flexibility for space heating and hot water systems must not compromise consumer comfort.

Additional end-use products were proposed by submitters:

Figure 5: Other residential end-use products

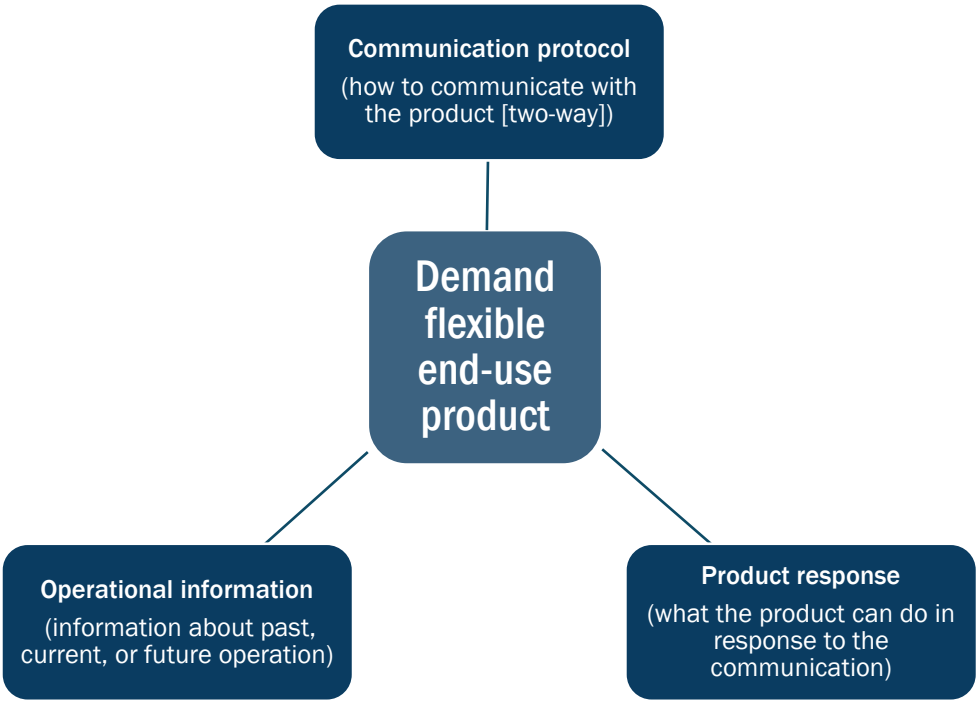


These end-use products may have significant energy or power demand, and further analysis is required to understand their uptake in New Zealand and the potential benefits of enabling demand flexibility.

Main end-use product components and considerations

The Green Paper outlined the core components required for an end-use product to be demand flexible:

Figure 6: Main end-use product components

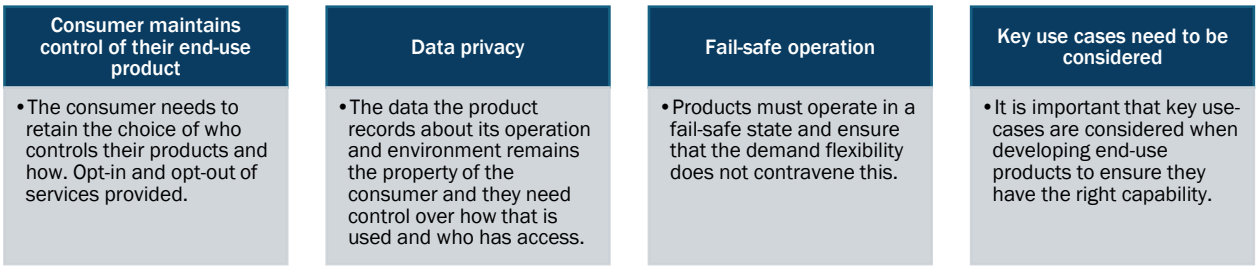


Submitters agreed with these components. Submitters noted that an extension to communication protocol is the communication layer. Communication protocols define the language used, while layers define the communication channel, such as Wi-Fi, cellular networks or Bluetooth.

Cyber security was raised as a key component for ensuring both end-use products and the wider electricity system remain secure.

Submitters also raised a range of additional product-level considerations:

Figure 7: Additional product-level considerations



Broader system-level considerations (beyond the end-use product) were raised, including consumer value and enabling innovation. These are discussed in the Barriers to the uptake of demand flexible technology section.

Barriers to the uptake of demand flexible technology

Submitters identified several barriers to uptake, with three recurring themes:

Lack of value structure for the consumer

- Half of submitters outlined the biggest barrier to demand flexibility development was the lack of value structure to enable a consumer to receive value from purchasing and using (in a demand flexible way) end-use products.
- The lack of value structure makes it difficult for consumers to justify the additional upfront cost in purchasing demand flexible end-use products (another barrier raised by submitters). This then also makes it difficult to bring demand flexible end-use products to market.

Limited consumer understanding

- As demand flexibility is developing in New Zealand there is limited understanding from consumers on what demand flexibilty is and how it will benefit them. While the end vision is for demand flexible systems to deliver maximum benefit to the consumer with limited consumer input, they will still need to understand demand flexibility, their role, and what it means for them.

Lack of standardisation

- Half of submitters outlined that a lack of standardisation in the implementation of demand flexibility (including end-use products) is slowing its uptake and creating additional barriers and challenges.
- Lack of standardisation is leading to complexity of integration which is making it costly to implement demand flexibility.
- It is also leading to slow development as solutions are often bespoke and not interoperable. It should be noted that some standardisation enabling interoperability already existis e.g. Open Charge Point Protocol for EV chargers, and the IEEE 2030.5 and OpenADR protocols.
- The combination of the above creates uncertainty, which is slowing the development of end-use products and their introduction to the New Zealand market.

Taken together, it is clear that a three-point approach (market development, consumer education, and end-use product development) is needed to accelerate the uptake of demand flexibility in New Zealand.

A further barrier raised was installer capability. Demand flexibility benefits often depend on correct configuration and integration at installation. Skilled installer capability was seen as essential.

Split incentives were also highlighted, particularly in rental properties where the purchaser of an appliance may not be the end user. Submitters noted that this can limit uptake and raises equity concerns.

The need for standardisation

Most submitters supported a minimum level of standardisation across communication protocols, product response, and operational information. This was seen as important for enabling uptake of demand flexibility and reducing complexity.

Some submitters cautioned against standardising too quickly, noting the risk of stifling innovation, and highlighting that manufacturers use proprietary controls to learn more about their products and how to improve them.

Alignment with international standards, particularly those of Australia, was strongly supported.

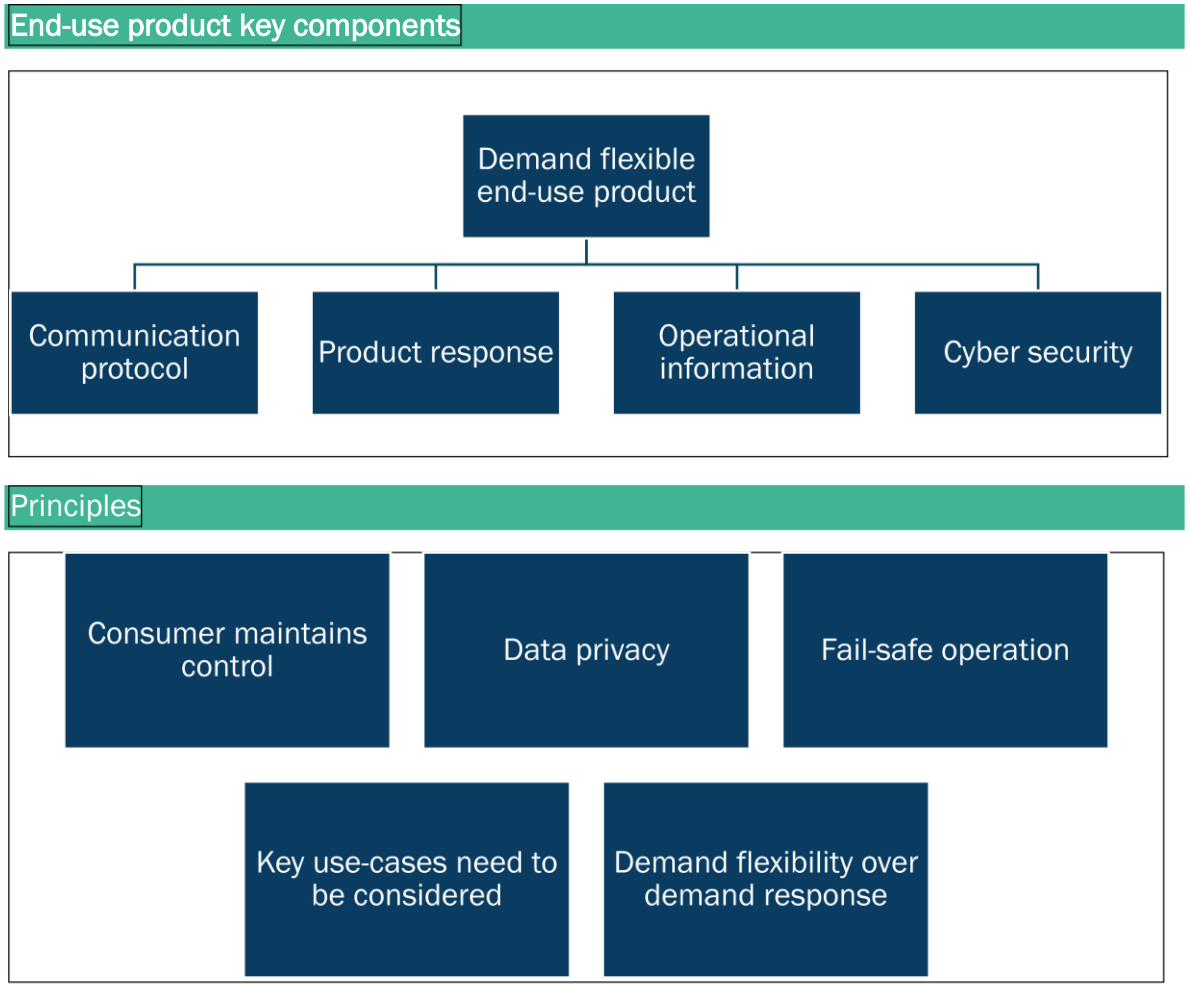
Submitters expressed differing views on whether standardisation should be voluntary or regulatory. Some considered regulation necessary to provide certainty and drive consistent uptake. Several submitters noted that voluntary approaches could play a useful role in informing the design of any future mandatory requirements.

Many submitters supported the development of approved product lists, similar to the EV Smart Charger Approved List | EECA, where industry participation is voluntary. These were seen as a practical way to provide clarity to the market and support consumer decision-making, while allowing products and approaches to evolve.

Revised approach to demand flexibility for end-use products

In response to feedback, EECA has refined its proposed approach to demand flexible end-use products.

Figure 8: Revised end-use product key components and principles



Cyber security has been explicitly included as a core component, recognising its importance, while noting government roles and responsibilities for cyber security are still under consideration.

The principles outlined will guide EECA's work in the development of end-use products. Consumer control, data privacy, fail-safe operation, and consideration of key use cases are based on submitter's feedback (as discussed earlier in the paper), while prioritising demand flexibility over demand response is new.

As outlined in the Green Paper, demand response typically involves one-way communication from an external party to an end-use product and is often used in emergency situations to reduce load e.g. generation or lines constraints. Demand

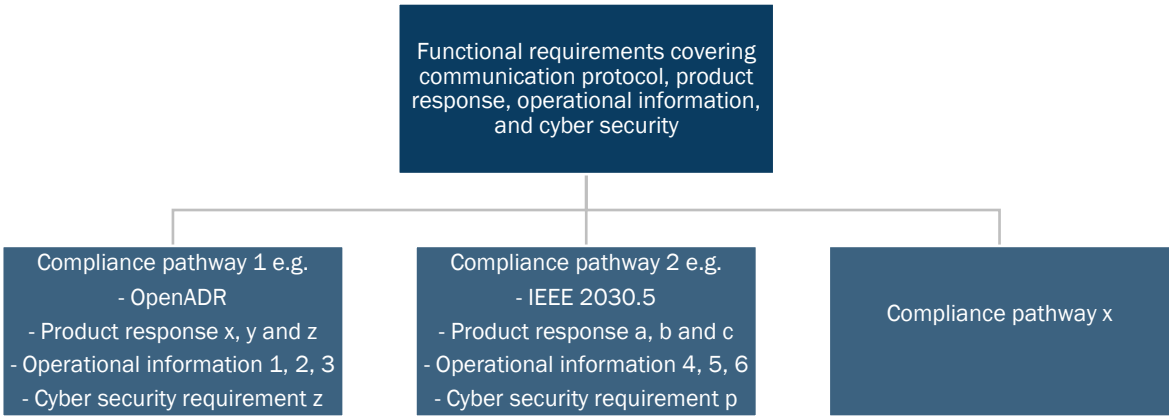
flexibility, by contrast, is two-way communication with exchange of information and dynamic operation, enabling both increases and decreases in load while enabling consumer preferences and operational information to be known and considered.

Taking into account submitter feedback on standardisation, EECA is considering an approach that focuses on defining functional requirements for demand flexibility and providing clear compliance pathways, while allowing alternative approaches that meet the functional requirements.

This approach would provide the market (electricity and end-use product suppliers) clear direction and certainty on demand flexibility requirements, while enabling innovation and alternative approaches.

Any specifications would be expected to represent minimum requirements, with scope for additional functionality. Where multiple pathways are used, they would need to deliver equivalent functionality to support consistent outcomes.

Figure 9: Functional requirements and compliance pathways example



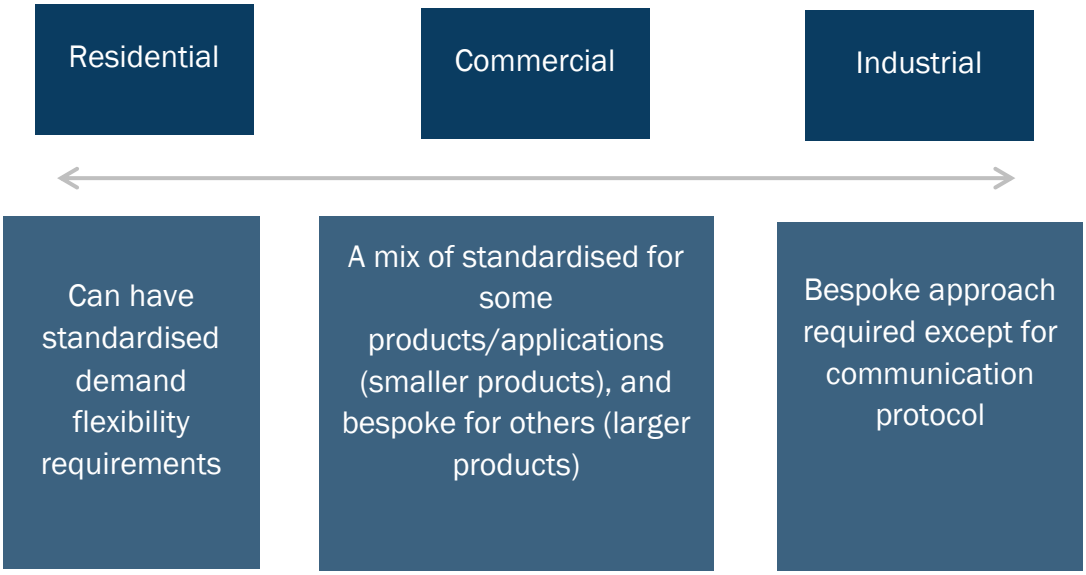
EECA recognises the range of views expressed on voluntary versus regulatory approaches. While work is underway to amend the Energy Efficiency and Conservation Act 2000 to enable regulation of products for demand flexibility, voluntary approaches can support early development, learning, and market readiness in the interim.

Additional feedback on commercial and industrial products and applications

Although the Green Paper focused on residential end-use products, EECA also asked about commercial and industrial products and applications. Submitters noted that as

products and applications become more bespoke, standardisation becomes more challenging:

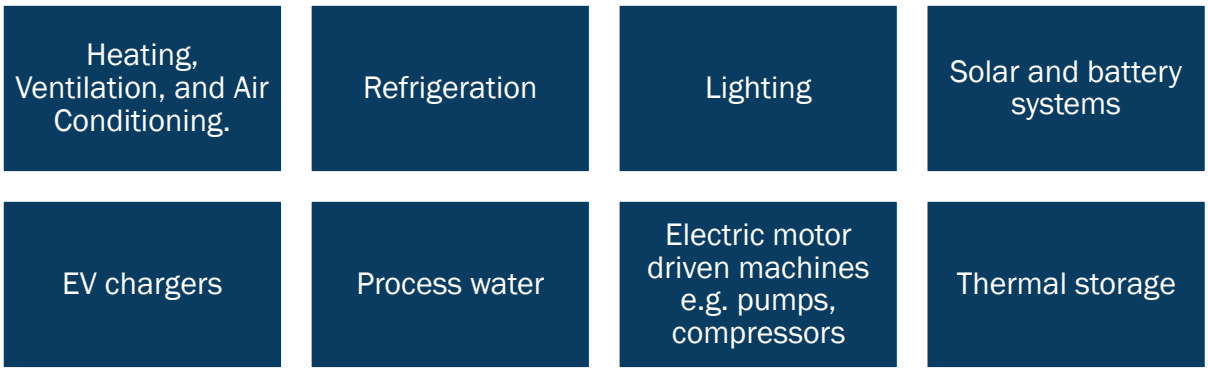
Figure 10: Ability to standardise across sectors



However, submitters agreed that communication protocols could be standardised across applications, reducing integration complexity and cost, and supporting wider uptake of demand flexibility.

Submitters identified other key commercial and industrial products that could be included:

Figure 11: Key commercial and industrial products



These products were identified based on their energy use, power use, and flexibility potential. In several cases, the applications suggested are more closely related to on-site energy management e.g. lighting, which could be controlled, for example, by using occupancy and daylight sensors.

Next steps

Based on the feedback we received, EECA will ensure that voluntary minimum specifications and guidance support innovation while providing clarity and consistency. EECA will work closely with MBIE, the EA, the Commerce Commission, other government agencies and associations. The development of the specifications will be in partnership with industry including end-use product manufacturers and suppliers.

Key next steps include:

1. Developing voluntary minimum demand flexibility specifications for priority residential end-use products:
    a. Covering the key areas of communication, product response, operational information, and consideration of cyber security.
    b. Taking a functionality approach with clear compliance pathways.
    c. Guided by principles: consumer maintains control, data privacy, fail-safe operation, key use-cases need to be considered, and demand flexibility over demand response.
    d. In partnership with industry.
2. Prioritising residential end-use products, with heat pumps, hot water systems, EV chargers, inverters, and HEMS as higher priority, followed by whiteware such as clothes dryers, clothes washers, dishwashers, and household refrigerating appliances given their lower priority.
3. Considering further work on demand flexibility for larger commercial and industrial applications, including the development of guidance.

This work will begin in 2026, with the creation of working groups to develop the voluntary minimum specifications. Working groups may work in parallel on different end-use products, and all voluntary specifications will include appropriate consultation.