Resi-Flex Project

Innovation Project Allowance
Close Out Report

1. Executive Summary

This report summarises the Resi-Flex project, a joint initiative by Orion and Wellington Electricity under the DPP3 innovation allowance, aimed at incentivising residential flexibility. Phases 1 (User Requirements) and 2 (Commercial Mechanisms) are complete, with findings shared publicly. Phase 3 (Co-design and Trial) is in progress, with trials underway with partners. Key findings include EDB network use cases, stakeholder barriers, consumer personas, and a commercial framework for flexibility. For more detailed findings, refer to Table 1 below. Ongoing work will transition to DPP4 under the Innovation and Non-Traditional Solutions Allowance (INTSA).

Table 1: Resi-Flex Project Phases

Project phase	Phase 1: User Requirements	Phase 2: Commercial Mechanisms	Phase 3a: Co-design and Trial	Phase 3b: Co-design and Trial
Start	31 March 2023	31 March 2023	31 March 2024	31 March 2025
Completion	31 March 2024	31 March 2024	31 March 2025	31 March 2027
Progress	Completed	Completed	Complete	In progress
Results shared	EEA Conference Paper (June 2023)[1] Public report for Consumers and Flex Stakeholders (July 2023)[2] EOI for Network Use Cases (March 2024)[3]	EEA Conference Paper (June 2023)[4] EOI for Trial Commercial Mechanisms (March 2024)[5] In progress with ENA FNF for Commercial Framework and Calculator (outside of the Resi-Flex project)		

[1] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EEA-conference-paper-Jun-2023.pdf
[2] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-Public-Report-Release-2023.pdf
[3] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf
[4] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EEA-conference-paper-Jun-2023.pdf
[5] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf

Table of Contents

2. Introduction

This report, prepared by Orion and Wellington Electricity, serves as the close-out summary for the Resi-Flex project under the DPP3 innovation allowance. Per the Default Price-Quality Path Determination, Electricity Distribution Businesses (EDBs) must submit a report to the Commerce Commission within 50 working days of completing an approved innovation project, detailing its key findings.[6]

The Resi-Flex project, funded under DPP3, comprises three phases (see *Figure 1: Resi-Flex Project Phases*):

Phase 1: User Requirements (Completed)

Phase 2: Commercial Mechanisms (Completed)

Phase 3: Co-design and Trial (In Progress)

As Phase 3 extends beyond DPP3's conclusion on 31 March 2025, this report covers findings from Phases 1 and 2 to date. Funding for Phase 3 will be sought under the DPP4 Innovation and Non-Traditional Solutions Allowance (INTSA), subject to DPP4 requirements. Findings have been shared publicly throughout the project (see *Table 1: Resi-Flex Project Phases*), and this report consolidates those insights, directing readers to detailed publications for further information.

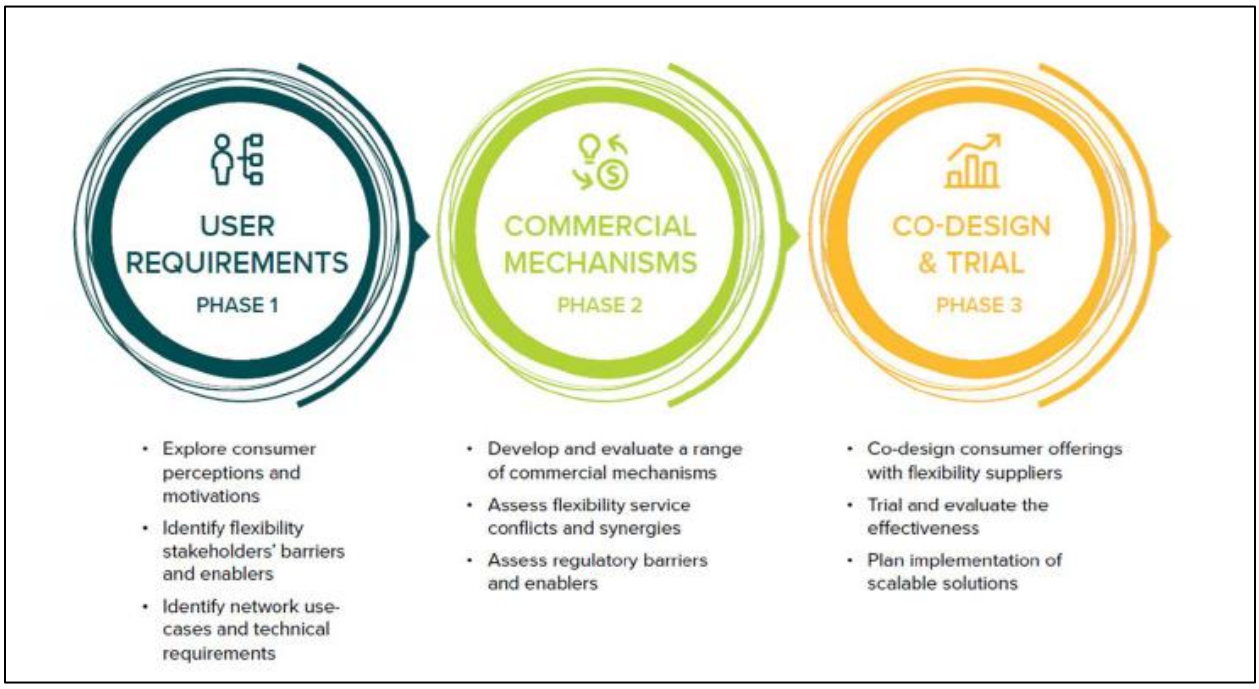

Figure 1: Resi-Flex Project Phases

[6] In accordance with Clause 5, Schedule 5.3 of the Electricity Distribution Services Default Price-Quality Path Determination 2020

Findings have been publicly shared as the project has progressed as detailed in Table 1. This close-out report summarises those findings and refers readers to those more detailed publications for further information.

Table 1: Resi-Flex Project Phases

Project phase	Phase 1: User Requirements	Phase 2: Commercial Mechanisms	Phase 3a: Co-design and Trial	Phase 3b: Co-design and Trial
Start	31 March 2023	31 March 2023	31 March 2024	31 March 2025
Completion	31 March 2024	31 March 2024	31 March 2025	31 March 2027
Progress	Completed	Completed	Completed	In progress
Results shared	EEA Conference Paper (June 2023)[7] Public report for Consumers and Flex Stakeholders (July 2023)[8] EOI for Network Use Cases (March 2024)[9]	EEA Conference Paper (June 2023)[10] EOI for Trial Commercial Mechanisms (March 2024)[11] In progress with ENA FNF for Commercial Framework and Calculator (outside of the Resi-Flex project)		

3. Resi-Flex Background

3.1. Industry Drivers

Historically, EDBs in Aotearoa have largely managed peak demand by managing consumers' hot water heating through ripple relays. This has enabled EDBs to defer network investment, demonstrating the value of modifying customer consumption patterns. With electricity demand forecasted to increase significantly between now and 2050, smarter ways of supplying electricity are required.

Flexibility has been identified as central to decarbonisation in New Zealand through:

- The Ministry for the Environment's *'Emission Reduction Plan'*[12], which calls for more efficient use of New Zealand Transmission and Distribution infrastructure;
- The Boston Consulting's '*The Future is Electric'*[13]*,* which includes high-priority actions to develop flexibility services, improve distribution peak pricing signals and smart managed tariffs to "Enable a smart electricity system", and

[7] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EEA-conference-paper-Jun-2023.pdf
[8] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-Public-Report-Release-2023.pdf
[9] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf
[10] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EEA-conference-paper-Jun-2023.pdf
[11] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf
[12] https://environment.govt.nz/publications/new-zealands-second-emissions-reduction-plan/
[13] https://www.bcg.com/publications/2022/climate-change-in-new-zealand

- Transpower's '*Whakamana i Te Mauri Hiko'*[14], which identifies the development of flexibility at the grid and distribution level as key deliverables.

Research by Concept Consulting[15] suggests that EV charging and hot water heating will drive much of the increase in residential electricity demand, while also providing almost 90% of the potential for flexibility from consumer appliances. However, most consumers are unaware of the existing or future value of flexibility or how this impacts their power bill. This was reinforced by the Electricity Authority Market Development Advisory Group (MDAG), which emphasised the need for tariff and technology innovation to ensure customers have access to the information they need to make informed decisions about electricity use and demand side flexibility.[16]

To unlock the value of DER and flexibility for households, businesses, communities, the power system and Aotearoa New Zealand, a cross-sector working group called the FlexForum was established. In August 2022, they published *'Flexibility Plan 1.0'*[17] as a starting point for coordinated and collaborative action, with an emphasis on learning-by-doing to deliver on the steps set out in the plan. Aligned with this is Wellington Electricity's *'EV Connect Roadmap'*[18], which was developed through a series of industry workshops aimed at identifying the actions necessary to implement flexibility.

3.2. Resi-Flex Scope

Orion initiated the concept for Resi-Flex in March 2022 through its Innovation Pipeline. The project aims to incentivise flexibility from residential consumers by exploring commercial mechanisms in collaboration with flexibility stakeholders. Building on connections through the FlexForum, Orion and Wellington Electricity partnered on the project to drive progress, leverage shared resources and expertise, and develop scalable insight.

Resi-Flex, as illustrated in Figure 3, began by understanding the needs of all users across the value chain, from consumers to flexibility stakeholders and distribution network companies. This understanding informs the development of commercial mechanisms that could enable customers to optimise their energy usage by harnessing value from multiple sources and incentivising increased use of flexibility. During the final stage of Resi-Flex, Orion and Wellington Electricity have partnered with multiple flexibility stakeholders to co-design and trial offerings that promote household flexibility. Throughout the process, insights are consolidated and used to inform new Resi-Flex trials or adjust current ones.

[14] https://www.transpower.co.nz/news/transpower-report-highlights-continued-progress-towards-highly-electrified-future
[15] https://www.concept.co.nz/uploads/1/2/8/3/128396759/ev_study_rept_2_v2.0.pdf
[16] https://www.ea.govt.nz/projects/all/pricing-in-a-renewables-based-electricity-system/consultation/price-discovery-under-100-renewable-electricity-supply/
[17] https://flexforum.nz/flexibility-plan/
[18] https://www.welectricity.co.nz/major-projects/innovation-projects/ev-connect

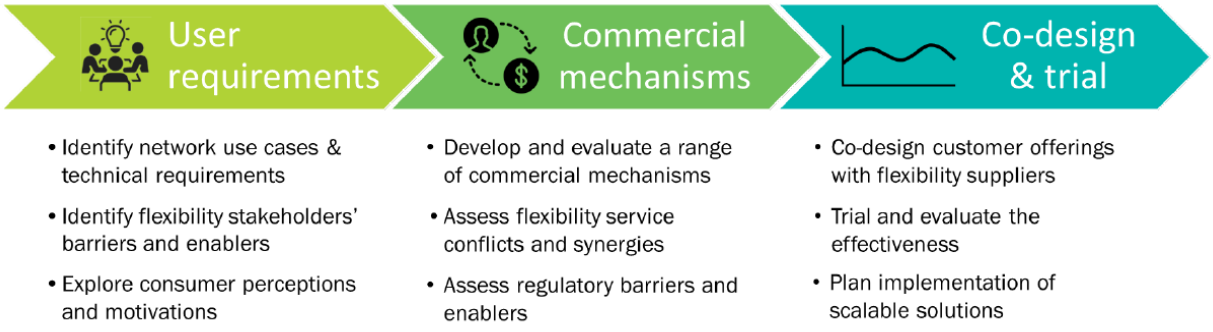

Figure 3: Resi-Flex Workstreams

3.3. Pre-requisites and Limitations

EV Connect and the *Flexibility Plan 1.0* highlight critical regulatory and market changes needed to ensure that flexibility services can be provided while maintaining a secure and stable electricity system.

We acknowledge that the flexibility market in New Zealand is in its infancy and the views (both stakeholders and EDBs) identified through Resi-Flex are likely to evolve. We expect that the user requirements gathered will continue to be refined as the industry gains experience.

The insights identified through Resi-Flex are informing the design of trials to explore a range of mechanisms and allow us to learn by doing in collaboration with other partners. The project is not prescribing solutions or services for business-wide implementation. Any shared insights do not supersede Orion and Wellington Electricity's existing delivery and pricing strategies; the findings expressed here are solely intended to explore options for stimulating residential flexibility in the future.

4. Phase 1 Findings: User Requirements

4.1. EDB User Requirements – Network Use Cases

Orion's Drivers and Constraints

Orion's 2023 Asset Management Plan (AMP) listed nine main drivers of network investment due to the changing environment described in the first section of the AMP. We identified the four main ones related to residential customers, although all drivers have an impact on the whole of Orion's network:

- Transport electrification, including EV Growth on the network
- Changing consumer behaviour, including demand, storage, or generation management
- Uncertainty around hot water control as consumers adopt new offerings e.g. retailers
- Housing intensification and population growth

Orion's strategic approach in response to these drivers, and relevant to Resi-Flex, is "creating a more highly utilised network – particularly at the low voltage level where our aim is to enable customer participation, prosumers, utilise new technology and information to squeeze as much as we can out of the existing network."[19]

Wellington Electricity Drivers and Constraints

Wellington Electricity's 2024 AMP forecasted the impact that New Zealand Decarbonisation plans could have on electricity demand and future distribution services. While that forecast was tempered with a greater focus on affordability in the 2025 AMP, the primary drivers of demand growth are expected to be the electrification of transportation and the potential transition from natural gas to other energy sources. Wellington Electricity's primary use cases for residential flexibility services are managed EV charging and hot water heating, reflecting that:

- Wellingtonians are New Zealand's highest residential reticulated gas users with 40% of homes having a gas connection.[20]
- The low voltage networks that residential customers are connected to were designed around an assumption of continued use of reticulated gas. They will become constrained as new devices connect.[21]
- While the rate of electrification slowed significantly during 2024,[22] future demand growth is still expected to be from the electrification of transportation and the reduction of fossil gas use. The use cases target the time of use of this demand, which has the largest potential impact on network capacity and future network investment.
- Most EV charging is likely to be at home.[23]
- Residential EV charging and hot water heating are the most appropriate loads to be shifted away from peak demand periods without impacting customer quality of life.[24]

[19] Orion 2023 AMP, Section 2.3.2
[20] Wellington Electricity 2025 AMP, Section 4.2.1.3
[21] Wellington Electricity 2025 AMP, Section 9.7
[22] Wellington Electricity 2025 AMP, Section 9.2.2
[23] https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/EECA-Public-Charging-Research-March-2023.pdf, Page 11
[24] https://www.concept.co.nz/uploads/1/2/8/3/128396759/ev_study_rept_2_v2.0.pdf, Figure 7

These drivers have shaped Wellington Electricity's strategy of increasing visibility of its LV networks to identify and value capacity constraints, signalling to retailers and other flexibility aggregators the physical guardrails within which the network must be operating to allow a flexibility market to function, and establishing the trigger points for when Wellington Electricity must invest in additional capacity.[25] The key is to ensure that all customers, including those that are not participating in flexibility, do not have their quality of supply affected by actions occurring within the flexibility market.

4.2. Flexibility Stakeholders' User Requirements

As part of the user requirements workstream, a survey and interviews were conducted with 17 stakeholders across the flexibility market to identify barriers and enablers to residential flexibility. Figure 5 illustrates the various roles each of the consulted stakeholders identified themselves as playing. The messages extracted from this engagement were summarised in the Phase 1 report, with consulted stakeholders allowed to provide feedback.[26]

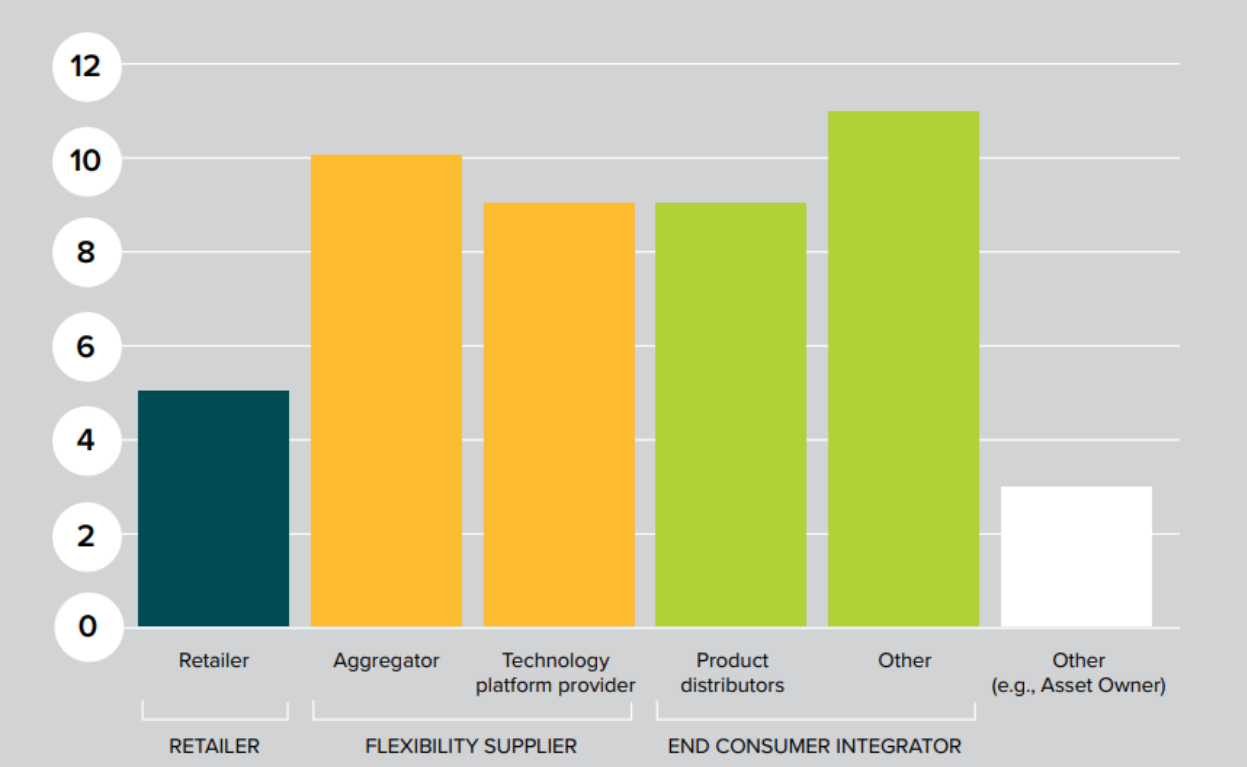

Figure 5: Consulted Flexibility Stakeholders and Roles

[25] Wellington Electricity 2025 AMP, Sections 4.2.2 and 11.2.2.
[26] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-Public-Report-Release-2023.pdf

The key barriers to residential flexibility raised by stakeholders were grouped into five main categories:

- Regulation and Standardisation (lack of, procurement processes, etc);
- Mindset (simplicity over education for consumers and legacy);
- Enabling Process – Pilots (isolated, limited scope);
- Commercial & Scalability (limited access to value stack, especially for new entrants);
- Accessibility & Predictability (data access, etc).

Stakeholders also provided the characteristics that they considered necessary for residential flexibility to be successful. We then used this feedback to identify a range of factors for EDBs to consider when developing flexibility services and the supporting commercial frameworks. Table 2 summarises the characteristics and factors, which were further expanded on the EOI that was released ahead of Phase 3.[27]

Table 2: Flexibility Stakeholders' Wants and Needs

Wants and Needs	Factors for EDBs to Consider
Customer Value: there is a real challenge with high upfront cost and simplicity for customers is key.	• Reduce upfront cost barrier • Simple solutions for the end consumer • Create value for all consumers
Market Stimulation: EDB flexibility is a key component of the value stack and collaboration and co-design is important.	• Sufficient real value • Accessible to all for an open market • Enabling other EDB value streams • Collaborative • Scalable
Commercial Mechanisms: need access to multiple value streams, importance of cost reflective price signals from EDBs, need a combination of distribution pricing and flexibility services and requirement for predictability,	• Value stack accessible • Predictability of events • Usability for products and fulfilment • Predictability of value • Tenure (long terms) and frequency are key
Operational Efficiency: need for transparency in processes for assessing flexibility and consistency between EDBs is key for scalability	• Consistency across EDBs, including standardisation of procurement and processes. • Operationally efficient.

4.3. Consumer user requirements

To inform how we can influence consumer participation in flexibility, we first wanted to understand their flexibility journeys, perceptions, motivations, barriers, and enablers. While Orion and Wellington Electricity will not have direct customer offerings with households during Resi-Flex (this is the role of flexibility stakeholders), sending the right signals so that flexibility stakeholders can easily package network savings and pass these on to customers is important.

[27] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf

Methodology

We engaged The Research Agency (TRA) to conduct the consumer research, using the following methodology:

1. **Identification and refinement of persona groups**: We identified relevant persona groups based on the ability and willingness of different groups to provide flexibility.
2. **International secondary research**: We analysed secondary data, using international research from ongoing flexibility trials, as well as behaviour change research and data about New Zealanders' current electricity usage and behaviour. We assessed and refined the persona groups based on this research.
3. **In-depth interviews with New Zealanders**: We acknowledge the limitations of applying findings from international secondary research to the New Zealand market. To mitigate this within the scope of our research, we conducted in-depth interviews with one New Zealander who fit into each of the finalised persona groups – five in total.
4. **Testing and verifying with FlexForum members,** including consumer-facing organisations and Resi-Flex Partners: This stage involved one session presenting a draft version of the report to collect early feedback, which helped to refine our persona journeys.

We used two key frameworks to develop each consumer persona:

- To describe the behaviour change element of flexibility, we defined each persona according to the Com-B model[28], including the three key components: Capability, Opportunity and Motivation.
- To describe each consumer persona's journey to flexibility, we used the Discover, Assess, Enable and Operate journey developed by FlexForum in *'Flexiblity Plan 1.0'*.

Rather than a comprehensive analysis of the Aotearoa New Zealand market, this work initiated a common set of consumer journeys toward flexibility that can be further built upon over time. International data used was skewed towards early adopters who are more likely to engage in trials, so there is less detailed data representing less engaged or energy-literate consumers.

An examination of international research, primarily using case studies and research papers from the UK and Australia, led to the summary in Figure 6, highlighting the two main motivators and two main barriers, as well as the solutions that have been identified or implemented through these studies.

[28] https://www.theresearchagency.com/insights/cheats-guide-com-b-behaviour-change-model

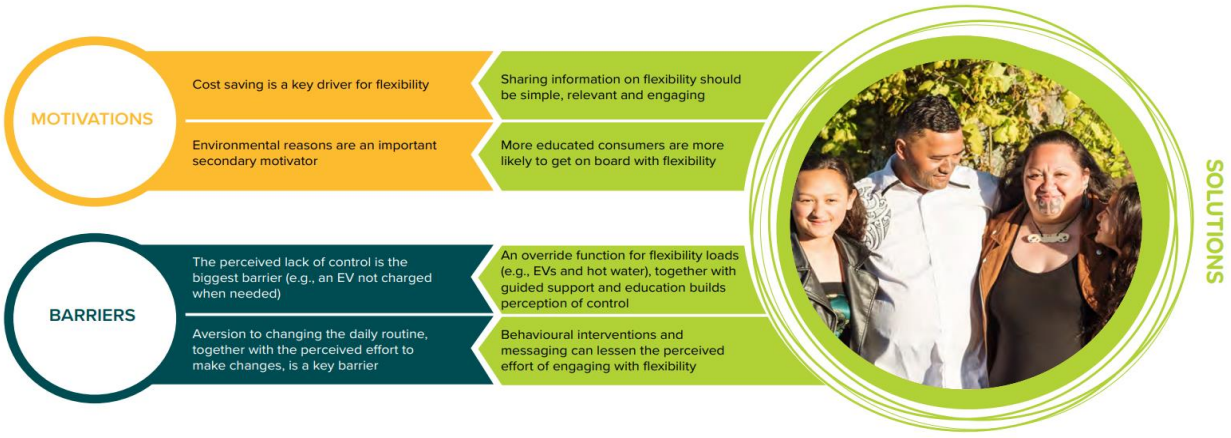

Figure 6: International findings and key common themes

Outcome

Using the methodology and the frameworks described above, we created five customer personas, defined their profiles, and mapped their detailed consumer journeys. In Figure 7, these personas are placed by their ability and willingness to provide flexibility, alongside their likely approach and attitude toward flexibility. These personas provide a useful framework for assessing potential flexibility offerings: what persona will the offering serve, how does it align with their attitude towards flexibility, and are there personas that are poorly served by existing offerings?

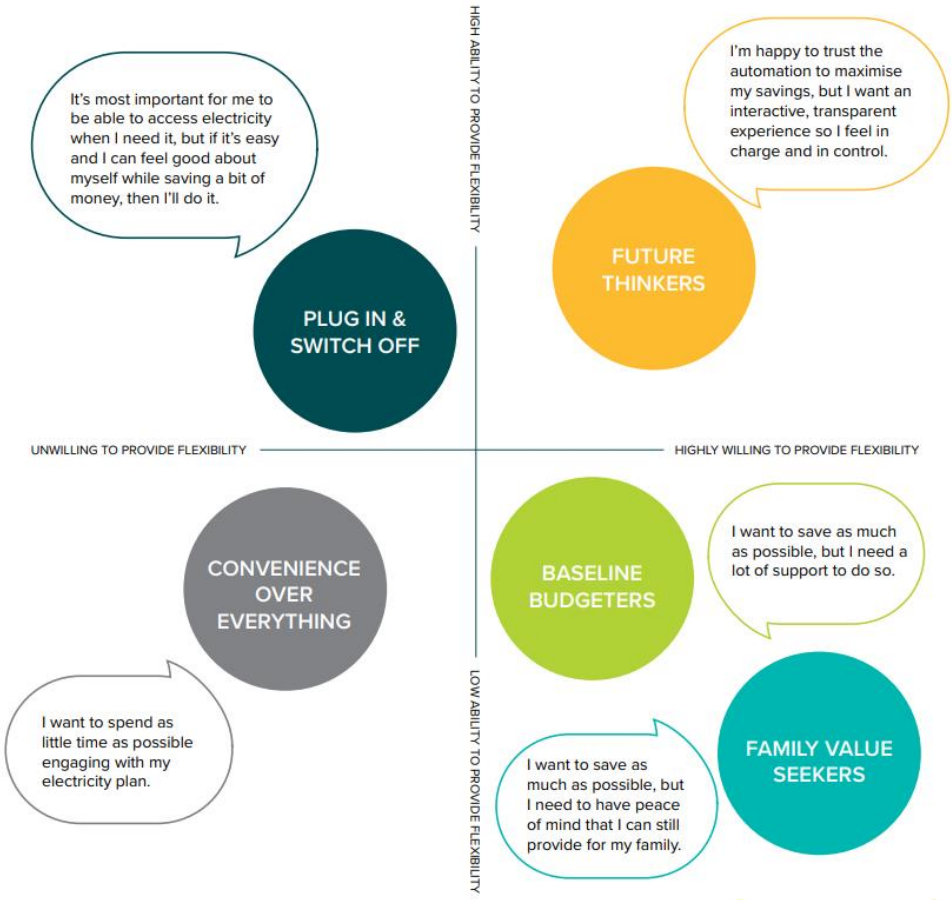

Figure 7: The five consumer personas and their attitude towards flexibility

From the five personas' consumer journeys, we extracted a high-level summary of the user requirements (Table 2) which should be considered during the trial design and across different stages of the consumer journey.

Table 2: Consumer Requirements

Consumer Journey Stage	Consumer Requirements
1. Discover	• Building education around flexibility in NZ. • Communication that flexibility can reduce costs. • Using relevant channels and message framing to engage customers.
2. Assess	• Showing how flexible customer offerings can help consumers reach their goals. • Making it easy to compare customer offerings.
3. Operate	• Perceived control over energy usage. • Simplicity and clarity in how flexible customer offering work. • Working alongside existing habits and routines.
4. Enable	• Support in operating any technology associated with flexible customer offerings. • Ongoing motivation and encouragement to engage.

Further details about the customer personas and other findings from this research are provided in the 2023 '*Resi-Flex Public Report Phase 1'*.[29]

5. Phase 2 Findings: Commercial Mechanisms

Concept Consulting was engaged to develop a framework of commercial mechanisms for EDBs to incentivise flexibility suppliers and their household consumers to participate in flexibility. The framework reflects the value that flexibility provides directly to distributors and considers how mechanisms to exchange this value interact with signals the wider value stack and consumer needs.

The framework includes:

- **Commercial framework** – calculating the economic value of flexibility to distributors and translating that value into price signals and payment budgets.
- **Commercial mechanisms** – evaluation of possible ways to pay for or price flexibility
- **Stacking analysis** – insights on the interaction between potential uses for flexibility

During the trials, we have been using this framework to simulate prices and payments that reflect the value of flexibility and explore combinations of commercial mechanisms to exchange this.

[29] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-Public-Report-Release-2023.pdf

5.1. The Commercial Framework

The combined payments and price signals should match the economic value provided by flexibility to an EDB. Correctly valuing flexibility enables a distribution network to make optimal investment decisions about when it's more beneficial to incentivise flexibility and when it's more beneficial to build new capacity.

The largest value driver for distribution businesses is the deferral of capital expenditures. The value of deferred capital expenditures can be assessed using long-run marginal cost (LRMC) methodologies. The commercial framework provides standard calculation methodologies that can be used to calculate consistent price signals and procurement prices. The calculation methodologies are based on the current regulatory framework, ensuring that the value of deferring expenditure is releasable and not just theoretical. Changes are needed to the regulatory rules to provide EDBs with allowances or incentives to purchase flexibility services. Without these changes, networks will not be funded to make payments for flexibility services.

Figure 8 reflects that the prices for procuring flexibility services must account for the value already included in tariff price signals. The commercial framework also highlights that flexibility standards and service levels impact the value that flexibility suppliers and their customers can realise.

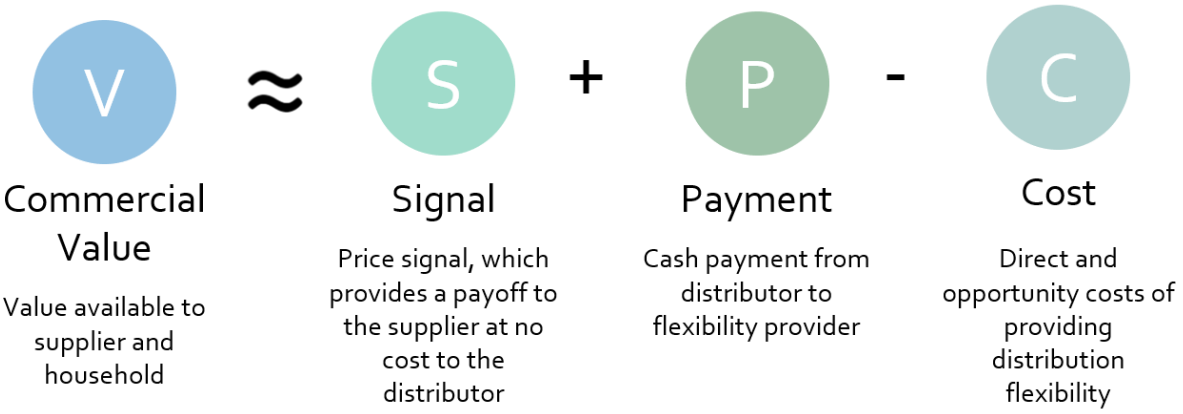

Figure 8: Commercial Framework

5.2. Value Stacking

Beyond distribution networks, we recognise that signals on the wholesale market will change as the share of intermittent renewable generation capacity increases. Other market signals will also impact flexibility incentives, meaning we must consider how these signals interact with EDB commercial mechanisms, and what arrangements will best maximise whole-of-system value and long-term benefit to consumers.

There are three different parts of the electricity supply chain that flexibility resources can support:

1. Generation Demand
2. Distribution and transmission networks (i.e. instantaneous power relative to network capacity).
3. Ancillary services (e.g. instantaneous reserves and frequency keeping).

The Concept Consulting research identified that ancillary services are almost always a lower-value use of flexibility resources than meeting a market need. Additionally, the requirement for ancillary services to be available for operation means that this need cannot be stacked with generation or network needs for a specific time period. However, flexible resources can be used in the ancillary market for one time period and in the wholesale market at a different time period. The assessment of value stacking was therefore focused on using flexibility to meet network and generation needs.

Concept Consulting tested this by comparing peak demand periods on Wellington Electricity's network with wholesale market spot prices. This found a strong correlation between the two in historical data from 2018, and in modelled results for 2030, with a flexibility resource needed for one use (be it generation or network) likely to be required during the winter evening peak, and therefore able to stack value from both sources. However, extending the modelling to 2050 indicated that these needs would ultimately diverge due to increased levels of intermittent generation, which would change patterns in the spot market.

This change in spot price pattern is illustrated in Figure 10, showing a weakening of the coincident network and generation during the winter evening peak, an increase in overnight generation needs, and very low prices during periods of peak solar generation.

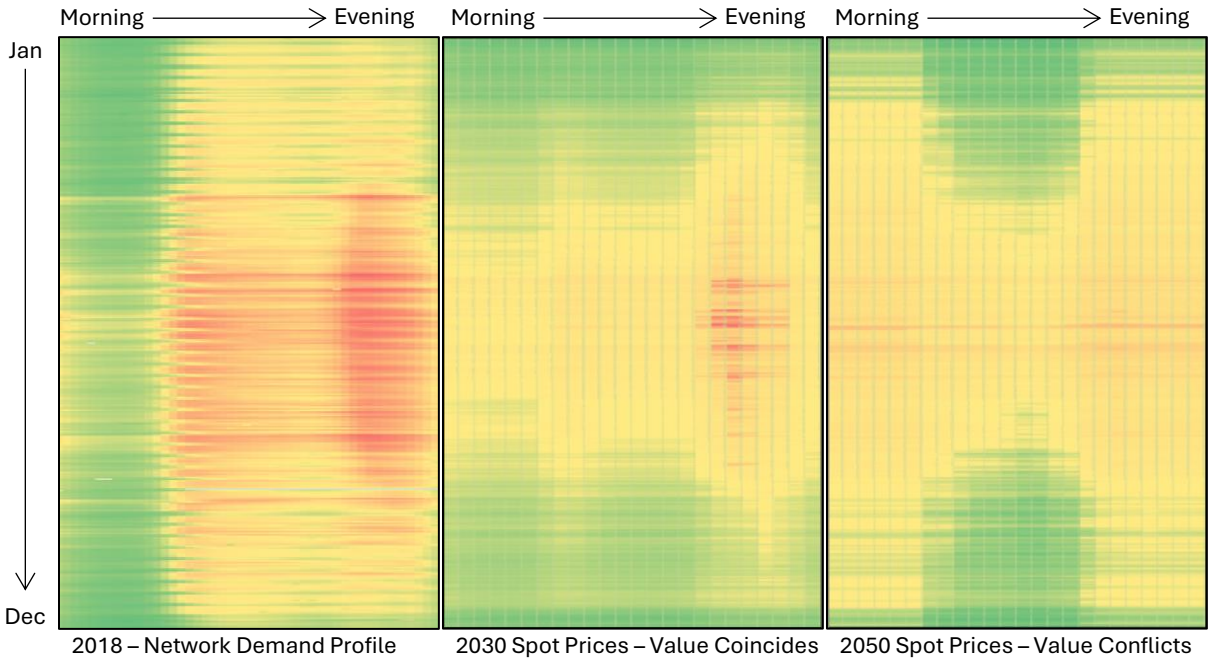

Figure 10: Modelled Pattern of Future Spot Prices and Network Peaks (Concept Consulting)

Through the Phase 3 trials we are assessing the ability of flexibility resources to meet both network and generation needs, and testing the ability of the co-designed protocols and commercial mechanisms to manage a potential misalignment of need, giving all parties a clear understanding of which need has priority and allowing them to plan for the scenarios where their particular need is lower in the value stack and therefore unable to be supported by the flexibility resource.

5.3. Development of Commercial Mechanisms

A range of different commercial mechanisms have been considered and listed in Figure 9. The commercial mechanisms can be grouped into three components of the economic framework to enable flexibility.

Figure 9: Examples of Commercial Mechanisms

The framework established evaluation criteria to assess combinations of the commercial mechanisms, including impacts on affordability for consumers less able to provide flexibility, such as those in energy hardship or without DER:

1. **Practical** – reasonably feasible to develop and implement
2. **Scalable** – could grow and endure beyond the trial
3. **Compatible** – fits with regulatory, commercial, and asset management arrangements
4. **Attractive to suppliers** – likely to attract participation by flexibility suppliers
5. **Attractive to households** – likely to attract participation by households
6. **Effective** – provides useful access to flexibility resources
7. **Fair** – equitable impact for all consumers

Three specific commercial mechanisms were selected for progressing to the Phase 3 EOI, and subsequently the trials phase of the project:

- Consumption Bands: price signalling via innovative network tariffs.
- Procured Flexibility: market-led with discounts or payments based on utilisation.
- Managed Service: standards-led with discounts or payments based on availability.

These commercial mechanisms are discussed in detail in the EOI documentation.[30]

[30] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf

6. Phase 3 - Trials EOI Process

A call for Expressions of Interest in partnering in Phase 3 of Resi-Flex was published in March 2024.[31] The purpose of the EOI was to identify respondents with the capability to participate in the detailed co-design and delivery of trials to test the commercial mechanisms developed in Phase 2.

13 responses were received to the EOI. Of these, five respondents were unable to proceed to the next stage of evaluation. The most common reason for this was that the responses were offering technical solutions for delivering flexibility, which did not align with the project's specific objective of testing the commercial mechanisms.

Interviews were conducted with the remaining eight respondents, in order to get a better understanding of their proposals. The EDBs' key focus during the evaluation was to identify and proceed with the offerings that had the ability to build early experience, and provide a potential pathway from trials to scaling to mass market. From these interviews, three respondents were chosen to be project partners, with one partner in a position to implement trials during Winter 2024, and the other two targeting implementation for Winter 2025.

6.1. Key Insights

The results of the EOI process identified a number of findings:

1. **All commercial mechanisms were of interest to respondents.** Each of the three proposed commercial mechanisms had at least one respondent indicating that it was the primary mechanism that they wished to trial.

2. **The ability to implement flexibility did not correlate with scale.** Proposals were received from respondents of a range of sizes and experience delivering flexibility. As a general observation, respondents with large customer bases typically had low experience with flexibility and needed significant development to implement a flexibility product for testing. On the other hand, smaller respondents either had products that were ready to deploy or the agility to rapidly bring new offerings to market, but often lacked the customer base on the EDBs' networks to meaningfully test the commercial mechanisms.

3. **Lack of existing customer relationships was a barrier to participation.** While the price-led Consumption Bands commercial mechanism is only applicable to Retailers, the standards-led Managed Service and the market-led Procured Flexibility are mechanisms that should be suitable for non-retailer aggregators and technology platform providers. Several respondents to the EOI were such companies that, while having technology that would allow these mechanisms to be tested, did not have existing residential customers to test them with, or a partnership with a Retailer to provide those customers. The concentration of customer relationships at the Retailer level, particularly as Retailers develop their own in-house flexibility offerings, is a potential barrier to non-retailer companies providing residential flexibility offerings to the market.

[31] https://www.oriongroup.co.nz/assets/Your-energy-future/Resi-Flex-EOI-phase-3-trials-Mar-2024.pdf

7. Next Steps

We are currently still in Phase 3 of the project, and are engaged with the three partner Retailers to explore different combinations of the commercial mechanisms, test customer offerings based on these mechanisms and other market signals, and measure the effectiveness of these in the real world with households. Phase 3 commenced in winter 2024, with the first trials undertaken in partnership with Octopus Energy.[32]

Using a learn-by-doing and collaborative approach, the research and engagement undertaken during the completed phases of Resi-Flex have helped us understand the perception and motivations of customers and other stakeholders. Our approach to Resi-Flex is to support the testing of more effective commercial mechanisms and customer offerings to encourage demand flexibility.

Insights resulting from Phase 3 will be published as we progress through the trials, culminating in an overall close-out report that will be published upon completion of the project.

8. Conclusion

The Resi-Flex project has made significant progress in understanding the user requirements and developing commercial mechanisms to incentivise residential flexibility. Through extensive engagement with EDBs, retailers, other flexibility stakeholders, and consumers, the project has identified the drivers, constraints, barriers, and needs that shape the residential flexibility landscape. The development of a commercial framework and evaluation of mechanisms provides a foundation for assessing how flexibility can be incentivised. The project is now in Phase 3, where customer offerings are being co-designed and trialled with flexibility stakeholders to test the effectiveness of the developed mechanisms. By advancing residential flexibility, the Resi-Flex project has the potential to unlock significant benefits for the electricity system and consumers, including deferred network investment, optimised capacity utilisation, and enhanced consumer participation.

[32] https://www.oriongroup.co.nz/assets/Your-energy-future/Orion-Wellington-Electricity-Incentivising-flexibility-with-Resi-Flex-January-2025.pdf