

# Removing finance-related barriers for C&I electrification

Stage 1 report – summary of existing insights

July 2025

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Completed as a workstream under the [Energy Transition Framework](#)

# 1 EXECUTIVE SUMMARY

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## Executive Summary

Electrifying New Zealand's commercial and industrial (C&I) energy users is essential to achieving national emissions targets, maintaining energy security, and enabling industrial competitiveness. C&I sectors account for approximately 20% of GDP<sup>1</sup> and 28% of energy-related emissions<sup>2</sup>, with electrification expected to increase electricity demand by ~9 TWh by 2050—around 20% of today's total consumption<sup>3</sup>. With gas supply constraints impacting some C&I users, this work helps identify the steps needed to ensure a transition that supports their ongoing operation in New Zealand.

This Stage 1 report consolidates insights from more than 15 reports and stakeholder engagements to understand the finance-related barriers to C&I electrification. The findings reveal a high degree of consistency across reports, enabling clear identification of four primary barrier themes:

- **Investment Viability** – Projects require technical understanding, face high upfront capital costs and long payback periods, limiting their attractiveness under conventional internal investment metrics.
- **Price and Revenue Uncertainty** – Volatile input/output prices (e.g. electricity, carbon) undermine confidence in long-term returns.
- **Finance Market Gaps** – Businesses face difficulty accessing fit-for-purpose financing products and financing service.
- **Network Connection Costs and Risks** – variable connection costs and uncertainty around project timing and infrastructure upgrades can slow the ability to electrify. Some of the regulatory processes to enable accelerated electrification are potentially not agile enough and/ or cost probative (eg: reopeners and CPPs).

Across these themes, a range of practical solutions are emerging—ranging from concessional finance and new service models to pooled procurement and alternative infrastructure funding mechanisms. The consistency of these barriers and solutions suggests they are a strong foundation for structured solution development in Stage 2.

Stage 2 will adopt a thematic workstream model aligned to the four barrier areas, working with finance and industry partners to co-design and evaluate fit-for-purpose solutions.

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<sup>1</sup> GDP (Production) by Industry, Year ended March 2023. <https://figure.nz/chart/WRpSmBftC60lEu2q>

<sup>2</sup> <https://www.mbie.govt.nz/dmsdocument/4292-process-heat-in-new-zealand-opportunities-and-barriers-to-lowering-emissions>

<sup>3</sup> <https://www.mbie.govt.nz/assets/electricity-demand-and-generation-scenarios-report-2024.pdf>

## 2 REPORT SCOPE

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This report has been completed as Stage 1 of the Energy Transition Framework workstream on removing finance-related barriers for C&I electrification.

This report focuses on C&I electrification, but the conversion of C&I processes is not just about electrification. Energy efficiency, conversion to biogas, hydrogen, biomass and other renewable energy sources will all play a large role in C&I conversion.

Some of the finance barriers and solutions identified in this report will also apply to these other areas. The summaries in appendix 3 of this report identify take outs related to efficiency and other renewable sources where relevant.

### *Why are we working on this?*

Goods-producing sectors, including manufacturing, construction, and utilities, contribute around 20% of GDP, with manufacturing alone contributing around 10%<sup>4</sup>. Process heat accounts for 28% of energy-related emissions and about 8% of New Zealand's total gross emissions<sup>5</sup>. Electrification of these processes could increase electricity demand by ~9 TWh by 2050, approximately 20% of today's total consumption. Done well, this transition for Commercial and Industrial users can strengthen New Zealand's economy, reduce emissions, and support a more resilient and productive energy system.

C&I electrification also plays an increasingly important role in supporting New Zealand's security of supply. Domestic gas supply has declined more rapidly than anticipated, and ongoing uncertainty around gas availability and pricing presents significant risks to energy-intensive sectors. Where suitable, electrification enables businesses to decouple from these constraints, maintaining continuity of operations and investment in New Zealand. Over time, electrified industrial users could also participate in demand response or flexible load programs, becoming a resource that supports overall system stability—particularly during dry years or tight capacity periods. As both a risk mitigation and system optimisation measure, industrial electrification is central to a secure energy future.

### *What is the objective?*

The objective is to identify opportunities to evolve and develop tools and approaches, from financing models to risk mitigations actions to advisory support, that can enable greater electrification in the C&I sector, thereby contributing to a secure and affordable transition.

### *What has been done?*

Recognising that this isn't a new topic and that significant work has already been completed in relation to both C&I electrification overall and specifically finance-related barriers, this first stage of the work involved:

1. Compiling and synthesising existing insights from recent reports
2. Identifying related government objectives, policy frameworks and regulatory work

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<sup>4</sup> GDP (Production) by Industry, Year ended March 2023. <https://figure.nz/chart/WRpSmBftC60IEu2q>

<sup>5</sup> Climate Change Commission, <https://www.climatecommission.govt.nz/assets/Advice-to-govt-docs/ICCC-accelerated-electrification-report.pdf>

We have planned direct engagement with C&I users to understand whether these insights reflect the latest experiences in these areas.

## 3 POLICY, LEGISLATION AND REGULATORY FRAMEWORK

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### 3.1 POLICY

#### Electrify NZ and related initiatives

The Government's *Electrify NZ* policy has now built out a programme of work is a key part of the Government's plan to grow our economy and reduce emissions to achieve Net Zero 2050.

Some of the policy elements of the programme include:

- The Energy Strategy, which is under development, which will set a pathway to 2050 focused on ensuring a modern, affordable and secure energy system<sup>6</sup>.
- Commitment to doubling renewable electricity generation by 2050.
- The Government Policy Statement on electricity<sup>7</sup>, supporting the Government's key objective of ensuring NZ has globally competitive electricity prices, requiring the regulator implements regulations such that there is sufficient electricity infrastructure to ensure security of supply and avoid excessive prices. strengthened infrastructure. This GPS also recognises that:

*"Electrification of the economy will require significant investment in transmission and distribution networks. **Efficient network pricing is essential to avoid or defer the need for investment in additional capacity and to promote efficient investment in new forms of electricity consumption – like electric vehicles, data centres and industrial heat.**"*

#### Climate Strategy

New Zealand's overarching climate strategy<sup>8</sup> outlines five core priorities:

1. Resilient infrastructure and prepared communities
2. Credible markets to drive transition
3. Abundant, affordable clean energy
4. Innovation-led economic growth
5. Nature-based solutions to climate challenges

#### National Infrastructure Plan

The Draft National Infrastructure Plan identifies the need for major investment in electricity transmission and distribution to support demand growth. One of the key issues identified in the draft plan in relation to electricity infrastructure is that:

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<sup>6</sup> <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-strategies-for-new-zealand/new-zealand-energy-strategy>

<sup>7</sup> <https://www.mbie.govt.nz/dmsdocument/29806-electricity-government-policy-statement-proactive-release-pdf>

<sup>8</sup> [https://environment.govt.nz/assets/J001281-MfE-Climate-strategy-brochure-FF\\_webV2.pdf](https://environment.govt.nz/assets/J001281-MfE-Climate-strategy-brochure-FF_webV2.pdf)

*“The energy transition may require network investment ahead of demand to facilitate decarbonisation. Pricing approaches will need to consider investment risk and affordability for users during the transition period. Affordability and reliability of energy could in turn affect economic outcomes for energy-using industries and the pace at which households and businesses convert from fossil fuels to electricity”.*

## **3.2 LEGISLATION**

### **The Resource Management Act 1991**

Under the RMA, there are the National Policy Statement (NPS) and National Environmental Standards (NES) for Greenhouse Gases from Industrial Process Heat. These statements regulate emissions from fossil fuel boilers, including:

- Immediate prohibition of new coal boilers for low to medium temperature heat;
- Phasing out of existing coal boilers by 2037;
- Set national policies and regulations for consents for discharges from industrial process heat; and
- Requiring greenhouse gas emissions to be reduced over time through the resource consent process requirement for consent holders to develop and implement emissions plans and adopt the best practicable option to reduce emissions.

The suite of resource management reform underway are also relevant to this work as they aim to streamline consenting for electricity generation, storage, and transmission infrastructure — supporting faster electrification.

### **Climate Change Response Act 2002 (New Zealand Emissions Trading Scheme (ETS))**

This act, in Part 4, establishes the New Zealand Emissions Trading Scheme. It establishes which industrial processes or uses of energy are required participants in the ETS and need to meet the requirements of that scheme in terms of retirement of credits (New Zealand units). The NZUs create a price signal for emissions-intensive activities, including process heat. Industrial emitters face compliance costs under the scheme, which may influence decisions to electrify.

### **Climate Change Response (Zero Carbon) Amendment Act 2019**

This act sets New Zealand’s legislative foundation for climate action. It:

- Requires the Government sets five-yearly emissions budgets, informed by advice from the Climate Change Commission
- Mandates Government to create Emissions Reduction Plans (ERPs) to meet each budget
- Establishes a framework for tracking emissions and policy delivery

The second ERP (2022–2035) contains specific initiatives to support industrial decarbonisation, including regulatory reform to enable better market access for demand response (refer to the Energy Competition Taskforce work noted below) and establishing a

woody bioenergy taskforce to identify opportunities for bioenergy (such as industrial conversion)<sup>9</sup>.

### **Energy Efficiency and Conservation Act 2000**

The EEC Act establishes legislative framework for promoting energy efficiency, energy conservation, and the use of renewable energy in New Zealand.

- It formally establishes the Energy Efficiency and Conservation Authority (EECA) as a Crown entity responsible for encouraging sustainable energy practices.
- New Zealand Energy Efficiency and Conservation Strategy (NZECS): The Act requires the Minister of Energy to prepare, adopt, and periodically review a national strategy that sets out objectives, targets, and means for improving energy efficiency and increasing renewable energy use.
- The act imparts a legal mandate, that the strategy must be developed in consultation with the public and key stakeholders and be reviewed at least every 5 years.

The act places a statutory responsibility on the government to plan and promote energy efficiency. There are currently a number of amendments to the Act being considered, including amendments related to regulating for demand response capability.

## **3.3 REGULATORY**

### **Network Connection Processes**

The Electricity Authority (Authority) is reviewing how network connection processes<sup>10</sup> could be improved to reduce delays and uncertainty, especially for large industrial users seeking to electrify. A decision on the first stage of this review was released on 18 July 2025. This decision included changes to the process for medium and large distributed generation connections such as solar and wind farms, and introduces new requirements for medium and large loads such as public EV charge points and new residential developments.

### **Distribution connection pricing**

The Authority is introducing four new requirements for electricity distributors to apply when determining pricing for new electricity network connections and connection upgrades for energy users (load). These requirements are supported by dispute resolution provisions as an avenue for ensuring the new pricing requirements are applied. The new requirements come into effect over time from April 2026. The changes will ensure that connection pricing methodologies are more efficient, transparent and more consistent across distributors. These fast-track measures provide a foundation for further reform if required.

### **Energy Competition Task Force**

The Energy Competition Task Force (Task Force),<sup>11</sup> jointly established by the Electricity Authority and the Commerce Commission, with representatives from MBIE as observers, was established in August 2024 to investigate ways to improve the performance of the electricity market.

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<sup>9</sup> <https://environment.govt.nz/assets/publications/climate-change/ERP2/New-Zealands-second-emissions-reduction-plan-202630.pdf>

<sup>10</sup> <https://www.ea.govt.nz/projects/all/network-connections/>

<sup>11</sup> <https://www.ea.govt.nz/projects/all/energy-competition-task-force/>

The Task Force's work programme focuses enabling new generators and independent retailers to enter and better compete in the market, and on providing more options for consumers and end users of electricity. These outcomes will encourage more and faster investment in new electricity generation, boost competition, enable homes, businesses and industrials to better manage their own electricity use and costs, and put downward pressure on prices.

Several Task Force initiatives are likely to support the transition to electrification for C&I energy users, including: the development a new super-peak standardised flexibility product (hedge contract), which began trading in January 2025; proposals to introduce non-discrimination measures to 'level the playing field' between the large gentailers and independent retailers; and work to develop a five-year roadmap of actions to appropriately reward industrial consumers for providing demand flexibility, including proposals to establish an emergency reserve scheme ahead of winter 2026.

### **Battery energy storage systems regulatory roadmap**

The Authority has published a draft two-year roadmap that sets out its work to support investment in battery energy storage systems (BESS). BESSs will play an important role in the transition to a renewables-based power system and we are likely to see a proliferation of BESSs connecting to New Zealand's power system in the future.

While BESSs can pose challenges for power system operation, they also provides benefits for consumers such as greater energy independence and lower electricity bills by using stored energy when electricity prices are high. The Authority's BESS roadmap sets out the work we already have underway and planned to ensure New Zealand has the right regulatory settings to maximise the benefits of BESS while managing the challenges.

## 4 FINDINGS

### 4.1 CURRENT STATE OF INDUSTRIAL ELECTRIFICATION

Commercial and Industrial electrification is the transition of energy use in commercial businesses and industrial operations away from fossil fuels (like coal, gas, or diesel) toward electricity. It covers a broad range of activities including:

#### Industrial

- Process heat: Replacing fossil-fuel-fired boilers, furnaces, and kilns with electric alternatives (e.g. heat pumps, electric arc furnaces, electric boilers).
- Machinery and equipment: Electrifying motors, compressors, and conveyors traditionally powered by diesel or gas.
- Material handling and transport within facilities (e.g. electric forklifts, cranes).
- Industrial cooling and ventilation systems.

#### Commercial

- Building energy use: Transitioning from gas or LPG to electric systems for:
- Space heating and cooling (e.g. heat pumps); Hot water (e.g. electric water heaters); Cooking and food preparation in hospitality or retail
- Building systems and operations: Lighting, elevators, HVAC, and electric backup systems.
- Commercial fleets and logistics: Adoption of electric vehicles and charging infrastructure for delivery vans, trucks, or service fleets.

For the purposes of this report, most of the projects referred to are focused in on process heat conversions, specifically process heat for low (up to 100 degrees) or medium (100-300 degrees) temperature processes. Conversion of higher temperature processes is more bespoke and likely to be completed in a staged way.

The Machine Count report has dimensioned the number of process heat machines across New Zealand. Across process heat boilers, furnaces / kilns, process air heaters / burners and reformers there are *(noting that this is a simple representation that doesn't account for sites that have some demand under 100 degrees and some over)*:

| Heat temperature            | Nationwide count |
|-----------------------------|------------------|
| Low (0 to 100 degrees)      | 204              |
| Medium (100 to 300 degrees) | 456              |

C&I conversion has been progressing so far. Of the 61.1PJ of fossil fuel use across the majority of large industrial sites and some commercial sites in New Zealand, 11.8PJ of fossil fuel use has been converted through completed projects to date, 10.4PJ are covered by confirmed projects, leaving a remaining 38.9PJ of fossil fuel use across 593 sites<sup>12</sup>.

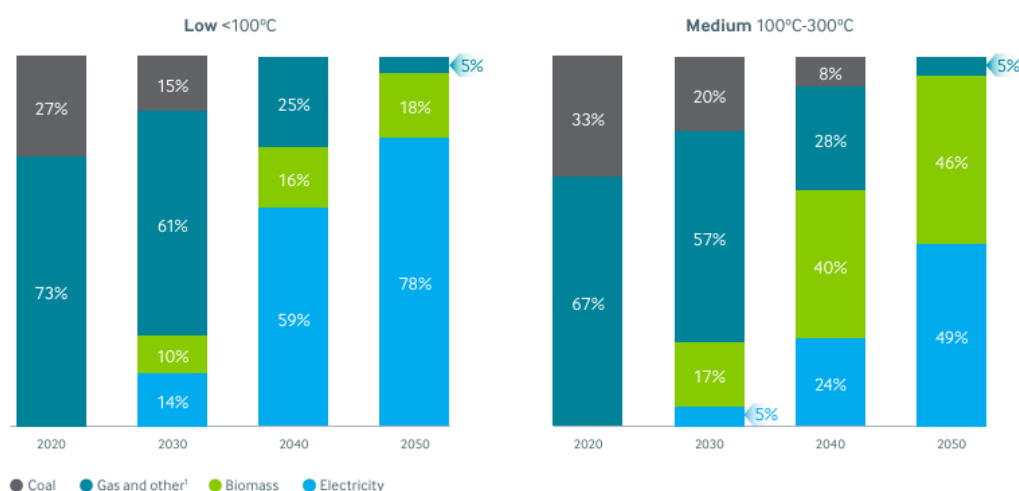
Both biomass and electrification are options for process heat conversion. The Transpower report, A roadmap for electrification, projected the conversion split for low and medium temperature heat. This noted the potential for low temperature processes to convert 14% to

<sup>12</sup> Data supplied by the EECA team from the RETA project.



electricity by 2030 and 78% by 2050, and medium temperature processes to convert ~5% by 2030 and 49% by 2050

**Figure 19: Supply of low and medium heat abatement opportunities**  
(Per centage)



<sup>1</sup> Other includes LPG, diesel and gas today, but includes biogas and other renewable substitutes from 2030  
Source: Transpower analysis and interviews with industry experts

Other inputs that help shape the view of forward projections on industrial heat conversion include:

- The National Policy Statement phase out of coal boilers by 2037 and the requirement for emissions reduction plans.
- Climate Change Commission modelling of the pace of industrial heat conversion forms part of the advice on the emissions budgets. For example, the advice on the fourth emissions budget (2036 to 2040) looked at a range of options for process heat, including a complete phase out of fossil fuel use by 2045.
- The Gas Industry Company complete gas supply and demand modelling to provide insights on impacts of decisions and potential pathways for the sector. The latest study report was completed for 2024<sup>13</sup> and contains certain assumptions about gas use for industrial and commercial customers based on the shortfall in supply and price impacts. Industrial customers are assumed to make cuts over and above their low temperature end-uses, reducing their high-temperature end-use as well. Commercial customers are assumed to reduce their low temperature space heating by 50% by 2035.

## 4.2 REPORTS REVIEWED

This report draws on insights from over a dozen pieces of research and engagement focused on the financial enablers and barriers to commercial and industrial (C&I) electrification in Aotearoa New Zealand. The reviewed materials span government-led analyses, industry partnerships, and targeted technical studies. Core sources include work commissioned or undertaken by EECA — such as reports developed with MAFIC, PwC, and the Centre for Sustainable Finance — alongside major system-level analyses like The Future is Electric by BCG, A Roadmap for Electrification by Transpower, and The Machine Count by Rewiring Aotearoa.

<sup>13</sup> <https://www.gasindustry.co.nz/our-work/work-programmes/supply-and-demand-2024/#gas-supply-and-demand-study-2024>

These reports collectively explore the investment viability of electrification technologies, market conditions, and infrastructure readiness. They provide a broad view of current and emerging financing challenges, including capital cost barriers, limited access to low-risk finance, uncertain returns, and connection constraints. Additional sources — including regional RETA studies, the EECA loans pilot, and the Sapere battery study — add granularity by exploring business models (e.g. leasing, shared ownership), aggregator approaches, demand-side flexibility, and specific opportunities in industrial process heat and behind-the-meter storage.

Together, the literature base provides a rich picture of what is known about C&I electrification in New Zealand — highlighting both structural barriers and actionable opportunities. Several reports emphasise the importance of innovative finance mechanisms (e.g. concessional loans, equipment-as-a-service models, and group purchasing), the role of public co-investment, and the need for coordinated infrastructure funding. The synthesis of these insights forms the foundation for identifying practical, scalable solutions to support faster and more equitable industrial electrification.

### 4.3 FINANCE-RELATED BARRIERS – THEMES ACROSS THE EXISTING INSIGHTS

The insight reports reviewed list several different finance-related barriers that are slowing or reducing C&I electrification. Appendix 1 provides a summary table showing which of each of the finance-related barriers were identified in each report.

The finance-related barriers exist across all elements of the electrification process, from the upfront investment cost, to the uncertainty of ongoing electricity prices, ability to access fit-for-purpose finance and connection costs. The barriers identified have been summarised below and categorised into four key themes.

| Theme                                     | Investment viability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Price and revenue uncertainty                                                                                                                                                                                                                                                                                                                               | Finance market gaps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Network connection costs and risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Barriers identified in the reports</b> | <ul style="list-style-type: none"> <li>- High capital cost and long payback periods.</li> <li>- Lack of commercial capital for some projects, despite being Positive NPV.</li> <li>- Short-term cash flow pressures, which can lead businesses to deprioritise upgrades even when long-term benefits are strong.</li> <li>- Insufficient project scale prevents access to favourable financing terms.</li> <li>- Business cases – leave out carbon cost, production disruption, and environmental benefits.</li> <li>- Complexity in modelling site-specific business cases.</li> </ul> | <ul style="list-style-type: none"> <li>- Input/output price uncertainty, especially for electricity, biomass, and hydrogen, undermines investor confidence.</li> <li>- Lack of long-term offtake or supply agreements makes it hard to unlock private finance.</li> <li>- Low or uncertain revenue from demand response or market participation.</li> </ul> | <ul style="list-style-type: none"> <li>- Perceived or real project risks (e.g. technical, adoption, revenue) inflate financing costs or deter investment.</li> <li>- Cautious lending criteria, with banks seeking greater confidence in project performance before approving finance.</li> <li>- Misalignment between risk-adjusted return expectations and available finance.</li> <li>- Limited financial innovation in the market to support new or unconventional technologies.</li> <li>- Low awareness among businesses about eligibility for green or sustainability-linked loans.</li> <li>- Lack of finance-ready service models (e.g. leasing, as-a-service).</li> </ul> | <ul style="list-style-type: none"> <li>- Limited access to energy networks or high connection costs in some industries.</li> <li>- Lack of transparency of charges and liability related to connection times.</li> <li>- Uncertainty around infrastructure investment timing hinders private electrification decisions.</li> <li>- Lack of clarity in demand forecasting affects financial security of grid or site-level upgrades.</li> <li>- Risk of “stranded assets” if electricity infrastructure is not aligned with demand growth.</li> </ul> |

## 4.4 PROPOSED SOLUTIONS FROM THE EXISTING INSIGHTS

The following solutions are drawn from the reviewed reports. They reflect a range of options that respond directly to the financial barriers identified. These solutions span both market-based and policy-enabled mechanisms and are grouped under the four key themes to provide clarity around which financial barriers they relate to.

### Investment viability

*Solutions that help build an understanding of project economics or improve internal decision-making frameworks for investment.*

- **Technical support** - Independent, impartial EECA advice; independent technical reviews and feasibility assessments; Technical performance and energy savings assurances; access to a trusted network of technical experts
- **Improving internal investment** - Encourage businesses to adopt internal energy funds, lower internal hurdle rates for sustainability-aligned projects, or enable access to external financing aligned with strategic sustainability goals.

### Price and revenue uncertainty

*Solutions addressing fluctuating input/output prices or the absence of long-term price certainty.*

- **Market intermediation** - Enable a public or trusted third-party intermediary (e.g. EECA) to facilitate long-term offtake and supply agreements (e.g. PPAs, fixed-price contracts) to improve investor and customer confidence.
- **Stronger and predictable price signals** - Improve alignment of emissions pricing (e.g. NZ ETS) to reflect true carbon costs and support electrification investment.
- **Recognising flexibility and security** – (where relevant) Incorporate the demand response and security-of-supply value of electrified technologies (e.g. flexible heat loads) into pricing mechanisms to enhance revenue certainty for participants.
- **Business Model Innovation** - Support the development of new commercial models that reduce upfront cost exposure and improve revenue predictability, such as:
  - Shared ownership or leasing arrangements
  - Heat-as-a-service or other energy-as-a-service models

### Finance market gaps

*Solutions that bridge gaps in the availability, accessibility, or appropriateness of financial products and advisory support.*

- **Aggregated financing models** - Develop aggregator or portfolio approaches to unlock better financing terms, reduce per-unit costs, and improve access to finance for smaller businesses.
- **Tailored lending partnerships** - Partner with lenders (e.g. banks, green retail loan providers) to co-design financial products and advisory services, including tailored business case development and standardised documentation.
- **Accessible, low-friction finance options** - Offer simplified, off-the-shelf financing packages for SMEs with streamlined application processes.
- **Flexible and concessionary financing structures** - Provide concessionary finance options such as zero-interest or low-cost loans, capitalised interest loans, or repayment structures linked to project performance.

- **De-risking capital-intensive projects** - Use mechanisms like savings guarantees, co-investment, or grants—particularly for first-mover or “proof of deployment” projects—to reduce financial risk and crowd in private capital.

#### **Network connection costs and risks**

*Solutions aimed at reducing the upfront burden or uncertainty related to electricity infrastructure access and upgrades.*

- Use of demand aggregation and regional coordination to de-risk infrastructure investment
- Public co-investment/facilitation in high strategic value areas
- Funding mechanisms to bridge timing/scale gaps (e.g. South Island RETA)
- Crown-financed investment model repaid via network charges
- Application-based Crown funding for electrification-enabling investments
- Encouragement of industry-government collaboration to share early-stage risk

## **4.5 INSIGHTS AND IMPLICATIONS**

This Stage 1 review of existing insights has established a strong foundation for Stage 2 of this workstream: identifying and testing practical solutions to the finance-related barriers facing C&I electrification.

The clarity and consistency of the finance-related barriers across the reports and insights group into four key themes that provide a strong foundation for the next phase of work.

Stage 2 should adopt these four themes as the organising structure for solution development, allowing targeted, collaborative workstreams to explore actions specific to each challenge.

#### **Advancing Stage 2 under each theme**

We propose that Stage 2 of the work adopt a thematic workstream model, aligned to the four key barrier areas identified.

We propose to frame each workstream around a hypothesis about the key challenge and focus on co-designing solution pathways with relevant stakeholders, including C&I users, financiers, government, and infrastructure providers.

| <b>Barrier theme</b>                    | <b>Investment viability</b>                                                                                                   | <b>Price and revenue uncertainty</b>                                                         | <b>Finance market gaps</b>                                                                                         | <b>Network connection costs and risks</b>                                                                                          |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Example hypothesis for solution framing | <i>“The business case for electrification is not stacking up due to high upfront costs and internal capital constraints.”</i> | <i>“Lack of pricing certainty undermines investor confidence and slows decision-making.”</i> | <i>“Available financing products and support systems are poorly matched to the needs of C&amp;I energy users.”</i> | <i>“Current network funding models do not support the timing or scale of investment needed to enable C&amp;I electrification.”</i> |

|                  |                                                                                                         |                                                                                                                    |                                                                                                                                     |                                                                                                                              |
|------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Workstream focus | Designing tailored advisory services to provide trusted advice on projects and internal prioritisation. | Supporting the development of long-term offtake agreements, clearer market signals and business model innovations. | Identifying enabling financing mechanisms, alternative (e.g. pooled) funding models and improving off-the-shelf financing packages. | Explore mechanisms could help de-risk network investment ahead of demand (such as the alternative financed investment model) |
| Potential lead   | EECA [TBC]                                                                                              | BEC [TBC]                                                                                                          | CSF                                                                                                                                 | ENA                                                                                                                          |
| Key stakeholders |                                                                                                         | Mercury; MEUG                                                                                                      |                                                                                                                                     | MEUG                                                                                                                         |

We also recommend that there are two key “gaps” in information that, if filled, could help remove finance-related barriers across all themes, these are:

1. An update to the economic assessment of electrification completed by Transpower as part of the 2021 report, A roadmap to electrification – this update can take into account the latest information on gas prices and other factors to provide an up to date view of the economic considerations involved in either end of life or mid-life asset replacement; and
2. Creation of a high level roadmap for industrial conversion through to 2050 – through pulling together the information about projects that have already been completed, projects that are planned and information across the EECA RETA reports about the potential scenarios for remaining conversions. This can help provide a high-level picture of the size, location, scale and timing for overall conversion across New Zealand.

As part of Stage 2, we will work with Transpower and EECA to design and implement a way to address these information gaps.

### **Stage 2 timeline**

The timeframe for Stage 2 will include:

- Confirmation of Solution lead and working group – As part of the update to and response from the August CE Steering Group meeting
- Update on solution progress to the CE Steering Group Q4 2025 meeting – November 2025
- Confirm solution and implementation approach to the CE Steering Group Q1 2026 meeting – February 2026

## Appendix 1 – Summary of finance-related barriers across the reports

|                                    |                                                                                                                                                                                                                                    | MAFIC report | RETA Sotuh | RETA North | PWC report | Transpower | The future is electric | Machine count | Alternative network funding | BESS for industry | CSF insights | Loan pilot insights | Market engagement insights | Targeted investment |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|------------|------------|------------|------------------------|---------------|-----------------------------|-------------------|--------------|---------------------|----------------------------|---------------------|
|                                    | <b>Finance-related barriers</b>                                                                                                                                                                                                    |              |            |            |            |            |                        |               |                             |                   |              |                     |                            |                     |
| Investment viability               | High capital cost and long payback periods                                                                                                                                                                                         |              | ✓          | ✓          | ✓          | ✓          | ✓                      | ✓             |                             | ✓                 |              | ✓                   | ✓                          | ✓                   |
|                                    | Lack of commercial capital for some projects, despite being Positive NPV; Short-term cash flow pressures, which can lead businesses to deprioritise upgrades even when long-term benefits are strong.                              | ✓            |            | ✓          | ✓          |            |                        | ✓             |                             |                   | ✓            | ✓                   |                            |                     |
|                                    | Insufficient project scale prevents access to favourable financing terms.                                                                                                                                                          | ✓            |            |            |            |            |                        |               |                             |                   |              |                     |                            |                     |
|                                    | Business cases – leave out carbon cost, production disruption, and environmental benefits                                                                                                                                          |              |            | ✓          | ✓          | ✓          |                        |               |                             |                   |              |                     | ✓                          |                     |
|                                    | Complexity in modelling site-specific business cases                                                                                                                                                                               |              |            |            |            |            |                        |               |                             | ✓                 |              |                     |                            |                     |
|                                    |                                                                                                                                                                                                                                    |              |            |            |            |            |                        |               |                             |                   |              |                     |                            |                     |
| Price and revenue uncertainty      | Input/output price uncertainty, especially for electricity, biomass, and hydrogen, undermines investor confidence.                                                                                                                 | ✓            | ✓          | ✓          |            | ✓          | ✓                      |               |                             |                   |              |                     | ✓                          | ✓                   |
|                                    | Lack of long-term offtake or supply agreements makes it hard to unlock private finance.                                                                                                                                            | ✓            |            |            |            | ✓          |                        |               |                             |                   |              |                     | ✓                          |                     |
|                                    | Low or uncertain revenue from demand response or market participation.                                                                                                                                                             |              |            |            |            | ✓          |                        |               |                             | ✓                 |              |                     | ✓                          |                     |
|                                    |                                                                                                                                                                                                                                    |              |            |            |            |            |                        |               |                             |                   |              |                     |                            |                     |
| Finance market gaps                | Perceived or real project risks (e.g. technical, adoption, revenue) inflate financing costs or deter investment; Cautious lending criteria, with banks seeking greater confidence in project performance before approving finance. | ✓            |            |            |            | ✓          |                        |               |                             |                   | ✓            | ✓                   |                            | ✓                   |
|                                    | Misalignment between risk-adjusted return expectations and available finance.                                                                                                                                                      | ✓            |            |            | ✓          |            |                        |               |                             |                   |              |                     |                            |                     |
|                                    | Limited financial innovation in the market to support new or unconventional technologies.                                                                                                                                          | ✓            |            |            |            | ✓          |                        | ✓             |                             |                   |              |                     |                            | ✓                   |
|                                    | Low awareness among businesses about eligibility for green or sustainability-linked loans.                                                                                                                                         |              |            |            |            | ✓          |                        |               |                             |                   | ✓            |                     |                            |                     |
|                                    | Lack of finance-ready service models (e.g. leasing, as-a-service).                                                                                                                                                                 |              |            |            |            |            |                        |               |                             | ✓                 |              |                     |                            |                     |
|                                    |                                                                                                                                                                                                                                    |              |            |            |            |            |                        |               |                             |                   |              |                     |                            |                     |
| Network connection costs and risks | Limited access to energy networks or high connection costs in some industries; Uncertainty around infrastructure investment timing hinders private electrification decisions.                                                      | ✓            | ✓          | ✓          |            | ✓          |                        | ✓             | ✓                           | ✓                 |              |                     | ✓                          |                     |
|                                    | Lack of clarity in demand forecasting affects financial security of grid or site-level upgrades                                                                                                                                    |              | ✓          |            |            |            |                        |               | ✓                           |                   |              |                     |                            |                     |
|                                    | Risk of “stranded assets” if electricity infrastructure is not aligned with demand growth.                                                                                                                                         |              | ✓          |            |            |            |                        |               | ✓                           |                   |              |                     |                            |                     |

## Appendix 2 – List of reports and insights covered

### Reports summarised:

- EECA work with Mafic [Draft]
- EECA [PWC report](#)
- [RETA – South Island](#)
- [RETA – North Island](#)
- [Potential use of batteries for industrial customers](#) - Sapere
- Alternative investment models for electricity distribution – ENA and KPMG
- [Machine count, 2025](#) – Rewiring Aotearoa
- [The Future is electric](#), 2022 - BCG
- [A roadmap for electrification](#), 2021 - Transpower

### Other work summarised:

- EECA work with the Centre for Sustainable Finance
- Insights from the EECA loans pilot
- Insights from the EECA direct engagement team
- Insights from the EECA Green paper: Updates to EECAs targeted investment approach
- Solar on farms survey (EECA)
- Novel financing options – Centre for Sustainable Finance

**Appendix 4 – Summaries of each report**