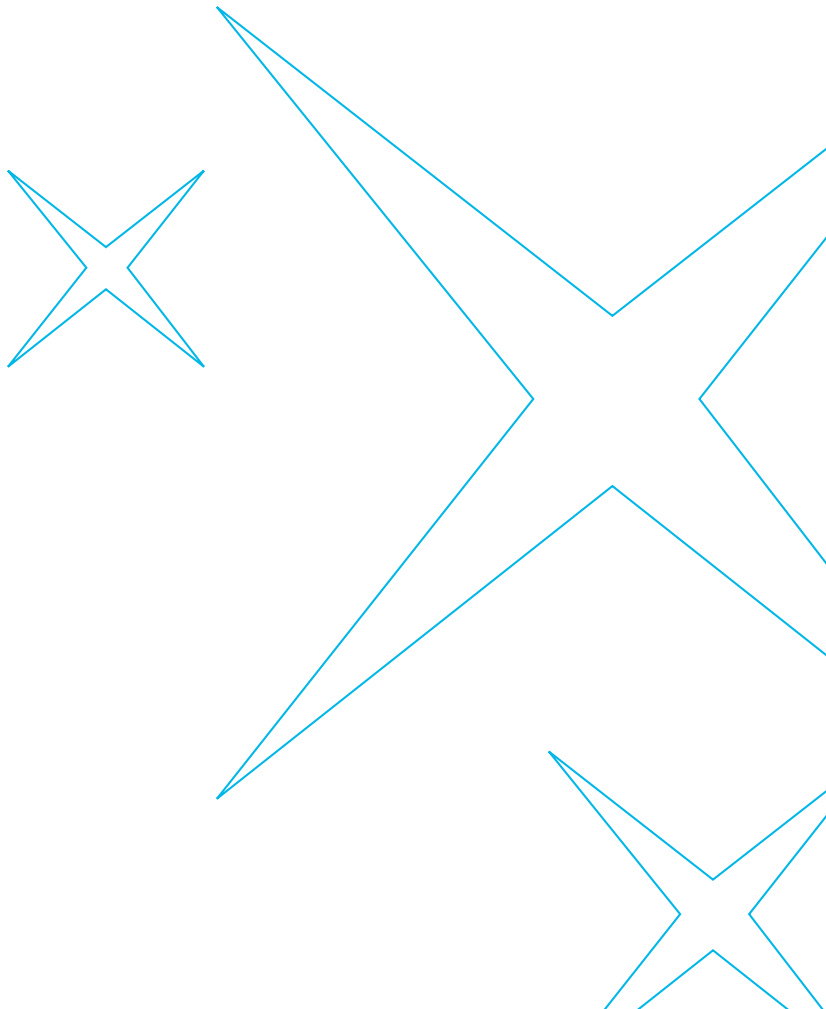
CENTRE FOR
Sustainable
Finance
TOITŪ TAHUA

Exploring System Level Financing Solutions to Accelerate the Deployment of Private Capital into Energy Transition in New Zealand

Progress report.



September 2025

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Executive summary

The Centre for Sustainable Finance (CSF) is leading a cross-sector programme, collaborating with industry, government, and finance partners, to design and advance novel financing solutions that unlock private capital for New Zealand's energy transition.

Energy-related emissions account for almost 40% of New Zealand's greenhouse gas emissions (GHGs), with transport, manufacturing and construction making up the bulk of this. As a result of the renewables led grid, electricity generation contributes less than 10% of energy-related emissions, and less than 4% of emissions overall. This points to the biggest decarbonisation opportunity within the energy system being the shifting of non-electric energy-use within transport, manufacturing, construction, as well as other activities, onto electricity, or biomass alternatives.

Whilst the renewability of the electricity grid enables New Zealand's energy system to perform relatively well on environmental sustainability (albeit it should be noted that the energy system as a whole is still fossil fuel dominated), the other two energy trilemma pillars, energy security and energy equity, are under strain. A significant contributing factor is gas availability, where depleting reserves are declining at a rate quicker than previously expected. This impacts those that use gas directly (both for energy and non-energy purposes) as well as the electricity system. The value attached to how environmentally sustainable an energy system is reduces significantly whilst energy equity and energy security are under stress. Rebalancing this trilemma is a prerequisite for further advancement on decarbonisation.

Our work focuses on the barriers to increased deployment of private capital into energy transition, and the solutions available to overcome these. It is positioned in the context of the New Zealand energy system, and the enabling of clean, abundant and affordable energy for all.

Our research and engagement highlights that there is no single barrier to increased capital deployment; rather, projects are hindered by a combination of factors including policy uncertainty, weak or uncertain project economics, high capex requirements, limited scale, poor access to information, and the current macroeconomic conditions. We believe that this points to the need for system-level solutions, supported by coherent, stable, bipartisan policy settings.

This paper positions our work to date within the New Zealand energy system. This enables us to undertake a prioritisation process to identify priority options from a long list of system level finance solutions for consideration. All solutions currently being considered have the potential to overcome some or all of the barriers identified, alleviate some of the challenges the energy system faces, and support progression towards clean, abundant, affordable energy.

Background

In 2024 research and stakeholder engagement was undertaken to identify barriers to increased levels of capital deployment, as well as highlight opportunities where CSF partners are well positioned to accelerate solutions. This work has also explored where policy or regulatory actions may be needed to support a market-led approach.

A key insight from the work undertaken was that there is no single primary barrier to increased deployment of private capital into energy transition. Projects often face multiple interconnected barriers, including businesses not having the relevant decision-useful information, insufficiently appealing project economics, an inability to access capital or the level of capital required, an inability to sufficiently de-risk, the scale of projects, as well as ambiguity and a lack of a clear signal caused by the absence of a sector strategy or government policy clarity.

As work in this area has progressed, the extent of the gas shortage crisis has become more evident and pronounced. Energy equity and energy security are under strain, with greatest impact on gas users and electricity generation. Alleviating these pressures is key for New Zealanders, their businesses, and their communities, as well as being vital for continued progress of economy-wide decarbonisation.

Role of CSF

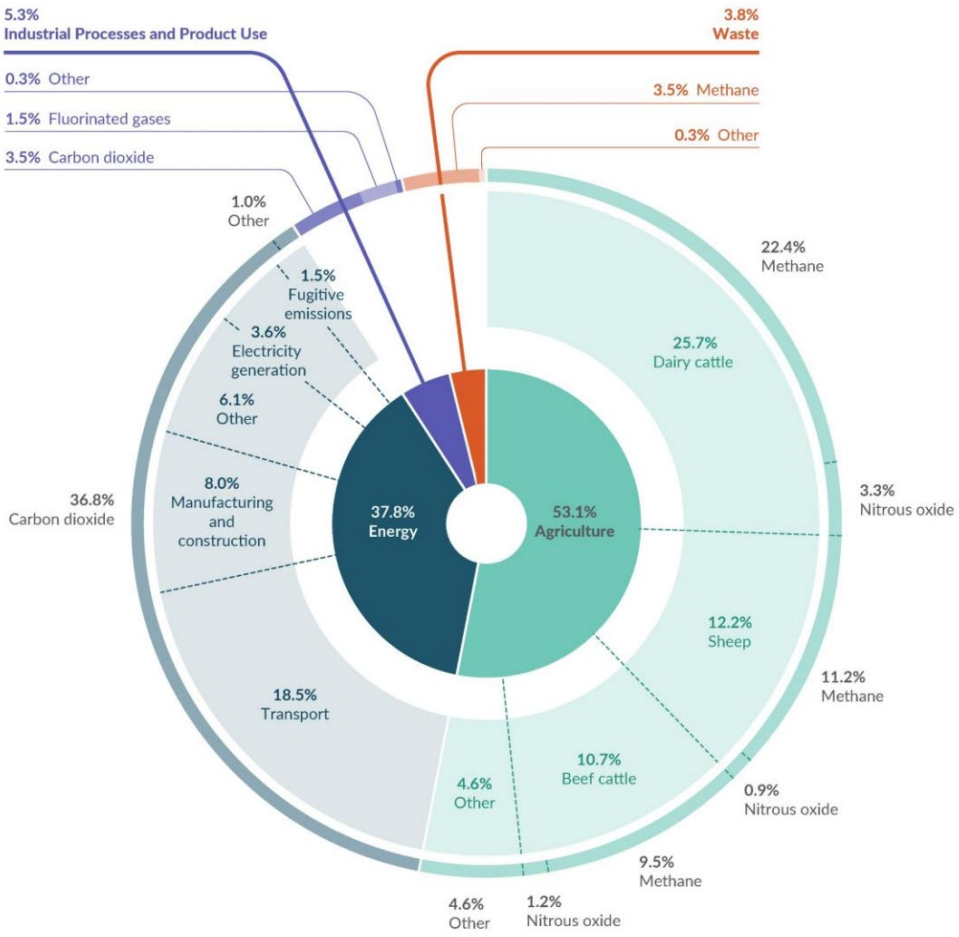
The Centre for Sustainable Finance is uniquely positioned to convene and coordinate across sectors, bringing together government agencies, banks, investors, energy sector participants, and advocacy groups to develop aligned and scalable approaches. Without this kind of catalysing force, the market risks fragmentation, inertia, and coordination failure, slowing progress toward the transition goals.

New Zealand's energy system

Many developed countries energy transition stories currently centre around cleaning up electricity generation. In a system where the grid has low renewables penetration, this is often where biggest bang for buck can be achieved from a decarbonisation perspective. However, it is widely considered that the "greening" of an electricity grid becomes increasingly difficult and expensive as the grid becomes more renewable. The low contribution of electricity generation in New Zealand's overall emissions make-up – at just 3.6% – suggests that greater decarbonisation opportunities can be found elsewhere in the energy system.

Almost 50% of energy-related emissions can be attributed to transport, where electric alternatives are becoming more readily available and more economically comparable with tradition internal combustion engine vehicles. Manufacturing and construction are the next biggest contributor at 21% of energy-related emissions.

Gross greenhouse gas emissions percentages in 2023 by sector, category and gas type



Source: New Zealand's Greenhouse Gas Inventory: Snapshot

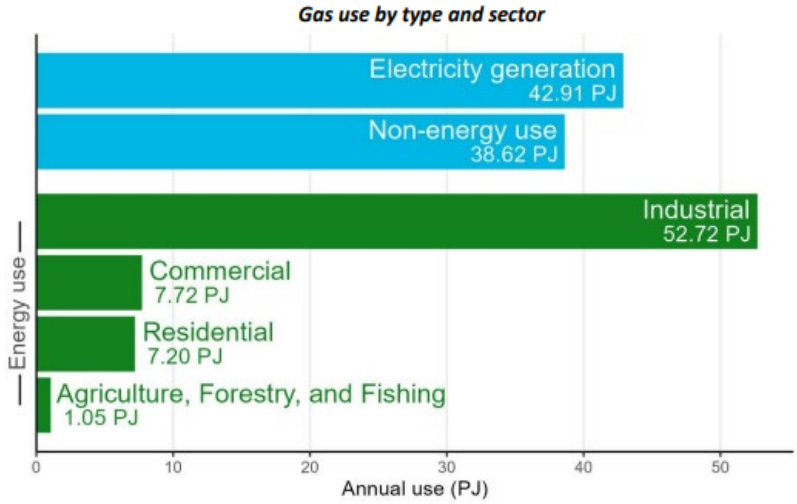
However, decarbonisation cannot be pursued in a vacuum, and a well-functioning energy system is a crucial prerequisite to a cohesive, equitable transition. The decline of gas

availability is creating a short-term energy shortage scenario with real economic and societal impacts already being felt. As this worsens, the risks include business closures and associated unemployment, an inability of some residents to heat homes, and increased pressure on public finances as a result of a rising proportion of society entering into energy poverty.

It is important to understand the key challenges faced by the energy system, as this provides the context within which energy transition sits. The mobilisation of capital will be crucial in solving these challenges, and these challenges must be solved to enable greater flow of capital.

1. Ensuring sufficient energy supply

Despite investment, domestic gas supply – which has been crucial for the New Zealand energy system and economy – has dropped 40% in the last seven years and (without significant investment and success) is projected drop another 50% in the next three years[1]. Around 75% of gas usage in New Zealand is for energy purposes, split across Industrial (35%), electricity generation (29%), commercial (5%), and residential (5%)[2]. Connection volumes, are predominantly residential, with ~270k homes connected to the grid vs. ~18,000 businesses / industrial users[3].



Source: Energy in New Zealand, MBIE, September 2024

The transition requires a step change in energy supply across the system. While electricity is already largely renewable, non-electric energy use – transport, industrial heat, process fuels – is still dominated by fossil fuels. Meeting demand will likely require:

- Accelerated investment in new renewable generation (geothermal, wind, solar, distributed resources).
- Development of renewable fuels (near term focus on biomass and biogas, setting up for the longer term with e-fuels).

[1] *https://www.poweringchange.nz/assets/assets/3.4.2-Tab-6-Gas-working-group-initial-report-2.pdf*
[2] *Energy in New Zealand – MBIE, September 2024*
[3] *https://gasnz.org.nz/what-we-do*

- Sufficient energy supply that is able to provide firming throughout the transition, recognising the value this brings to energy security.

2. Reliable delivery of energy in all conditions

Seasonal and climatic risks expose New Zealand to shortages during winter peaks and dry years. Gas decline has magnified these vulnerabilities, reducing operational flexibility. A diversified set of solutions are likely to include:

- Storage capacity – grid-scale batteries, hydro contingent storage, thermal storage.
- Renewable diversity – broadening the mix across wind, geothermal, solar, biomass.
- Demand-side management – ensuring large users, households, and aggregators can reduce load when supply is scarce.
- Fossil fuels – retaining a buffer role in the near term for periods of stress until alternative technologies scale.

3. Meeting peak demand

The declining availability of gas for electricity generation comes at a time peak electricity demand is growing[4]. As the electrification of transport, heating, and industry progresses it has the potential to create sharper peaks across the electricity system. Without intervention, this could drive expensive overbuild of infrastructure. The challenge is to ensure the right mix of:

- Demand-side tools such as smart EV charging, thermal storage, and time-of-use pricing.
- Supply-side flexibility including batteries, renewable fuels, and fast-start fossil generation.
- System planning and regulation to reward flexibility and avoid unnecessary cost escalation.

4. Getting energy to where it is needed

Infrastructure must keep pace with electrification and fuel diversification. Transmission, distribution, and fuel logistics will determine whether new supply can reach consumers. It is estimated that up to $2.4bn of investment annually could be required into transmission and distribution alone[5]. Key issues include:

- Transmission upgrades to connect renewable energy supply to demand centres.
- Distribution modernisation for two-way flows and electrified heating/transport.
- New infrastructure for renewable fuels (biomass logistics, hydrogen pipelines, EV charging).

[4] *Energy Transition Framework Metrics and Measures – Transpower, July 2025*
[5] *The Future is Electric – BCG, October 2022*

- Identifying how to manage and maintain fossil infrastructure during the transition to support resilience, including management of how this is funded in a way that delivers equitable outcomes.

5. Ensuring energy affordability

The “messy middle” of the transition – where we are managing system cost increases alongside new investment and decommissioning of the old system – risks raising costs for households and businesses. Affordability depends on:

- Efficient capital mobilisation, to avoid stranded or duplicative investment.
- Managing existing assets as part of the mix, ensuring any retiring of capacity does not lead to a security shortfall.
- Targeted support for vulnerable households and fairness across regions.
- Ensuring price signals encourage efficiency and demand response, while addressing hardship.

An energy system that provides reliable, affordable, clean power – a crucial enabler to a successful transition – should be a national priority. To tackle the challenges highlighted, clear long-term direction that enables stable investment settings is crucial. This needs to facilitate the appropriate short-, medium- and long-term energy mix, ensure sufficient capacity exists to provide reliable security, promote flexibility of both supply and demand, drive coordinated investment in electricity networks and renewable fuel infrastructure, and keep affordability front and centre to ensure households and industry are appropriately invested.

The barriers to increased deployment of private capital

The finance sector is largely functioning as expected. Capital is being deployed where inherent risks are appropriately mitigated, and remuneration is commensurate with the residual risk and associated transaction costs. As such, capital *is* flowing into energy transition today. However, noting the scale of investment required, as well as the potential for the issues highlighted to exacerbate in the short-term without appropriate action, investment is not occurring at the pace needed.

Five key overarching and often interrelated barriers need to be addressed to accelerate capital deployment:

1. **Policy Uncertainty**
   Investors in transition assets, whether they are financial, business or residential, need certainty. This is especially true for long-term investments where up front capital requirements are high. Policy certainty provides comfort that rules and settings won't change to the extent that a good investment decision becomes a bad investment decision. High uncertainty contributes to higher risk which often drives a higher cost of capital. A stable policy environment must overcome short political cycles and deliver the best long-term outcomes.

   Potential Opportunities:
   - A bipartisan, comprehensive energy strategy with short-, medium-, and long-term actions and targets.
   - Clear policy signals and, if and where appropriate, funding mechanisms that enable delivery of energy strategy targets.

2. **Informational**
   Decision makers don't always have or understand all the relevant information required to make an informed decision. This can be from the perspective of technology options available to them but also forecasts of future energy and related input prices. This can be true for homeowners requiring simple, digestible information for a home upgrade, as well as industrial businesses with more bespoke requirements and the need for technical experts. Enabling informed decisions, with financing options included, will empower decision makers.

   Potential Opportunities:
   - Simple, digestible, digitally available decision-useful information for households and small businesses (CSF's Residential Energy Upgrade work with the finance and energy sectors demonstrates progress here).
   - Connecting commercial and especially industrial businesses with specialist engineering and energy audit consultants to develop energy action plans to enhance efficiency and enable informed decisions based on a range of available transition and technology options.

- Publishing clear, transparent information on current and forecast gas supply, gas prices and electricity prices (at a minimum) to enable businesses to understand future energy costs.

3. **Project economics**

The commercial case for transition projects can be marginal. High upfront capex requirements and long payback periods negatively impact where projects sit in the prioritisation queue. One risk is that a small increase in interest rates on large debt facilities can sufficiently impact project economics to the extent that a project delivers a negative or sub-hurdle financial return. With regards to industrial electrification, network connection and upgrade costs can be significant and fall either fully or partly on the end user.

Potential Opportunities:

- Lower interest rates, enabled through government co-funding, government guarantees, bank access to low-cost central bank funding, or regulatory capital settings that lower capital requirements for transition finance.
- Low-cost, long-term finance preferably at a fixed rate to enable certainty of overall project cost inclusive of finance. This may very well require infrastructure, institutional or impact investor type debt alongside government debt to enable concessionary rates.
- Policy and regulatory certainty reduce risks and provide greater revenue certainty, which can bring down the cost of capital.
- Alternate business models that reduce or remove the need for upfront capex, such as as-a-Service type models.
- Update regulation to better incentivise demand response and distributed storage to enhance electricity network efficiency and support management of peak demand.

4. **Access to the required credit / capital at an affordable price**

New Zealand exited recession in December 2024, however annual growth to March 2025 remained negative at -1.1%[6]. Total company liquidations are expected to surpass 2024's 10-year high (tracking 12% above at the half year point) which in itself was nearly 40% higher than 2023[7]. Lenders and investors need to make the right risk decisions, and the right risk/reward decisions. In the current economic climate this would point to credit being less accessible and more expensive, especially considering the high capex nature of transition investments. Noting project economics headwinds, high interest rates can be the factor preventing investment.

Potential Opportunities:

- Government guarantees or government loans to support normally viable businesses through capex intensive transitions.

[6] *Stats NZ – June 2025*

[7] *A boom in businesses going bust – RNZ, August 2025*

5. **Scale**

   There are a limited number of projects in New Zealand of sufficient size to attract institutional investment, and there are a limited number of companies in New Zealand of sufficient size to contract PPA offtake. When it comes to overseas institutional investors, it can be the case that the low levels of investible projects results in an unfavourable cost benefit dynamic, noting the requirement to understand how the market operates, what the policy landscape and outlook is, and who the key stakeholders are. With regards to PPAs, low volumes of corporate businesses diminish the ability of renewables developers to secure a high proportion of contracted offtake, which ultimately impacts on ability to access capital, and the cost of that capital.

   Potential Opportunities:

   - Pooling and government guaranteeing of PPA offtake to generate sufficient demand with the appropriate risk profile to enable grid scale renewable developments or construction of biomass facilities.
   - Open up electricity networks to contestability, widening the volume of large-scale projects available for institutional capital to invest in, targeting an area of the system with greatest investment needs.

These barriers are significant, but surmountable. A reduction in friction is needed across each of the areas identified above. This will require a cohesive, collaborative approach.

System level finance solutions for consideration

CSF has developed a long list of potential system level finance solutions that we believe can help to alleviate some of the energy system challenges and support progression of an orderly transition. The role of government varies, and the extent of government involvement as part of many of the solutions can be increased or decreased depending on appetite. However, our work leads us to the conclusion that government engagement, including in some cases through the provision of finance or guarantees, can lead to a better, lower system-cost outcome for New Zealand as a whole.

CSF will undertake prioritisation and progress development of priority solutions through stakeholder collaboration.

The table on the following page provides a very high-level description of each solution, as well as a qualitative assessment for initial prioritisation.

System Level Finance Solutions

Initial assessment undertaken at a high level, for directional purposes only.

		Energy Trilemma	Overcome Barriers	Regional / Community Focus	Capital Deployment Potential	Role & Mandate	Actionable Now	Stakeholder buy-In
C&I Resilience Fund	Timebound govt & private fund to provide concessionary long-term finance to industrials switching from gas to bio / electric.							
PPA Market Facilitation	Govt. provides guarantee for pooled offtake (multiple smaller buyers) which facilitates private debt for renewable generation / biomass facilities. Can be structured to smooth higher long term energy prices.							
The NZ Energy Security Co.	Govt. investment vehicle, bridging gap to bankability for mid/large scale projects that enhance energy security. Subordinated debt and concessionary capital can crowd in private capital.							
Home & Business Investment Prog.	Govt. co-lends to energy transition projects via commercial bank partnerships. Leverages bank distribution network, concessional capital enables fit-for-purpose lending (term, rate).							
Local Sustainability Bonds	Retail investors invest in council bonds, proceeds utilised locally e.g. electrify school boilers & install solar. Positive community aspect and local decarbonisation story.							
Remote / Community Solar	Mid-to-large scale solar where the public can buy/rent panels. Govt. guarantee for some initial demand. Grows solar whilst giving equitable access (i.e. those without roof space / access to capital, renters).							
Energy Security G'tee Scheme	Govt. backed lending for assets, activities, businesses enhancing energy security, similar mechanism to BGFS. Lowers bank capital costs, which can lower prices for borrowing customers.							
Funding for Energy Security	RBNZ lending to commercial banks at OCR for any onward energy security assets, activities, businesses. Lowers bank funding costs, which can lower prices for borrowing customers.							
RBNZ Transition Risk Factor	Transition risk factor applied to collateral posted with RBNZ to reflect risk. Encourages lending to transition activities, assets, businesses.							
Regulatory Capital Weighting	Bank capital relief for energy transition lending. Reduces bank capital costs which can be passed through to cheaper financing.							

The Centre for Sustainable Finance

The Centre for Sustainable Finance: Toitū Tahua (the Centre) is an independently governed charitable trust founded in 2021 to accelerate progress toward an equitable, inclusive and sustainable financial system. Established by major financial institutions, Crown entities and strategic philanthropists, the Centre follows a model pursued successfully in other jurisdictions such as the UK, Canada, Europe, Australia and Singapore.

As an 'honest broker', the Centre has a key role in convening, identifying actionable pathways and removing barriers to funding and financing the green transition. The Centre seeks to clarify the role of private capital in achieving New Zealand's commitments under the Paris Agreement, which includes "making sure that financial flows support the development of low-carbon and climate-resilient economies.

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Contact **Andy O'Hare – andy@sustainablefinance.nz** with any questions or to request further information on the content of this report.