To: Te Waihanga New Zealand Infrastructure Commission

Date: 10/12/2024

Consultation: Testing our Thinking: Developing an enduring National Infrastructure Plan

About Rewiring Aotearoa
Rewiring Aotearoa is a non-partisan non-profit organisation that believes electrification has major economic, social, climate and environmental benefits. Rewiring Aotearoa represents everyday New Zealanders in the energy system, we advocate for an equitable energy transition that does not leave anyone behind. Our mission is to rapidly reduce New Zealand's emissions, improve cost-of-living outcomes, increase energy security and resilience by electrifying the millions of fossil fuel machines in our homes, communities, businesses and on-farm. Our responsibility is to advocate for the systems change and policy settings that enable electrification and reducing distributional inequity.

Our submission

Thank you for the opportunity to provide feedback on Te Waihanga's *Testing our Thinking: Developing an enduring National Infrastructure Plan.* We support this consultation as there is significant value in crowdsourcing ideas to help shape the plan and build a solid evidence base. We see our role as representing customers within the energy and infrastructure system, while also addressing the engineering and business model challenges on both sides.

Part 1: Key insights

To support our submission, this section provides an overview of some key insights from our work to date in this area.

Maximise the use of existing infrastructure
As mentioned in the discussion document, Aotearoa NZ is already investing heavily in infrastructure, with approximately $287bn worth of assets, yet this expenditure has not always translated into the desired outcomes to date. The challenge lies in transforming this investment into robust, efficient, and effective infrastructure. This translation challenge reveals an underlying efficiency problem at multiple levels. To address this, maximising the potential of *existing* infrastructure assets must become a top priority for the NIP.
By improving the efficiency and extending the lifespan of current systems and assets, we can realise significant cost savings, environmental and economic benefits without resorting to new, slow, resource-intensive projects.

We know that electrification is key to improving efficiency, resilience and sustainability across Aotearoa NZ's infrastructure. By transitioning to electric-powered systems in transport, industry, and energy generation, we can lower operational costs, strengthen resilience, reduce emissions, and enhance the performance of existing assets.

A key part of unlocking this potential is to recognise the role that homes, farms and businesses can play in being a valuable (and valued) part of our energy infrastructure. These existing assets (Customer Energy Resources, 'CERs') are an untapped resource

within our energy system. Recognising homes, farms and businesses as potential energy infrastructure not only avoids unnecessary capital expenditure but also accelerates progress toward meeting climate commitments. Instead of building new infrastructure, we should prioritise optimising and electrifying what we already have, ensuring long-term value and greater efficiency for a sustainable future. This must be recognised in the NIP.

Don't overlook the potential of demand-side solutions

To reiterate on the above, we want to stress the significant potential that demand-side solutions can provide - today, not tomorrow. The emissions reduction potential of doing so is substantial (see Figure 1 below) and, importantly, can be achieved quickly, cost-effectively, and with existing technology – unlike many other sectors. Our research also highlights that widespread electrification offers multiple benefits, including cost savings, enhanced resilience, and improved public health across the economy.

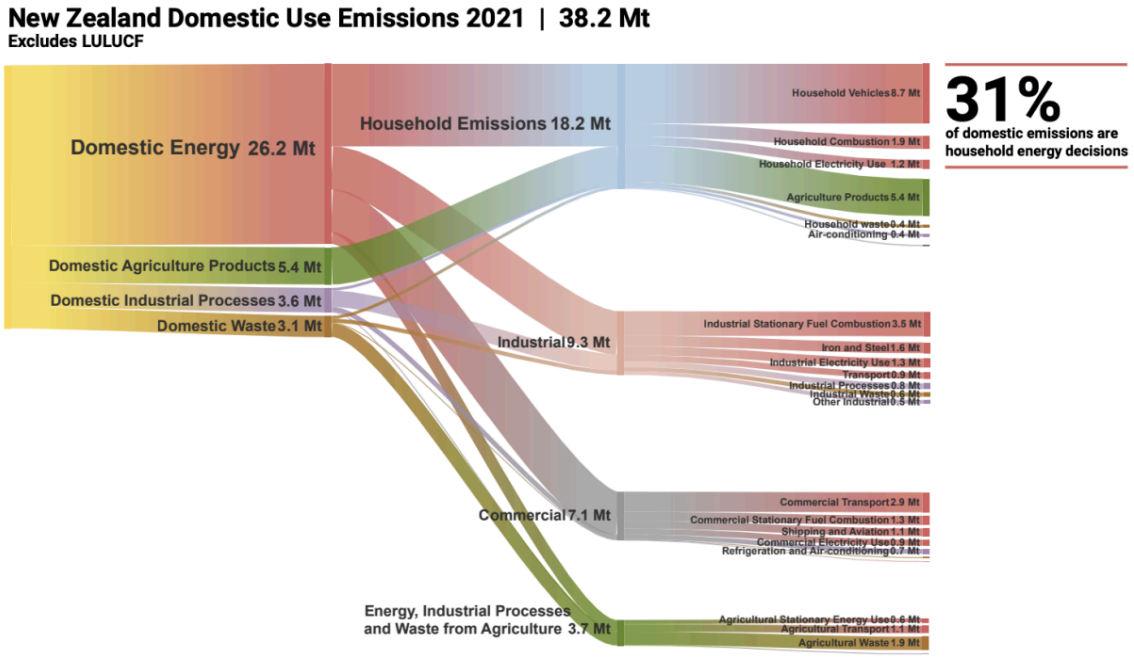

Figure 1: Domestic emissions sankey[1]

An electricity system with more solar and batteries on the demand side, is likely to be lower cost and substantially more resilient. Looking at the adoption rates of solar and batteries world-wide, it could be argued that homes, businesses and farms installing rooftop solar en masse is only a matter of time. Aotearoa NZ has already crossed the tipping point for electrification - meaning that the cost of buying and financing electric machines is cheaper over the long run than using fossil fuels. The system should be built to harness this shift, making the most of CERs rather than limiting their potential (through current outdated regulations and poor market incentives) to ensure a more efficient, sustainable, and resilient energy future.

[1] This sankey diagram further breaks down the domestic emissions categories in more detail to show that 31% of domestic economy emissions relate to household energy decisions. Significant amounts of small business emissions come from similar energy decisions.

Further, from a cost perspective, if a significant proportion of homes, farms, and businesses invest in solar and battery systems, consumers could collectively spend between $50 billion and $100 billion over the next decade on energy infrastructure. This investment, driven by their own economic and security interests, would not only benefit individual users but the entire energy system. By expanding renewable generation, increasing network utilisation, and providing the largest peak demand reduction resource in the country, CER would help to lower overall system costs. This increased efficiency would lead to better utilisation of the existing network, meaning less need for expensive upgrades and overall lower electricity costs.

This shift to distributed energy would reduce strain on the national grid, lower energy bills, and reduce emissions. The key question is whether our infrastructure planning (and the NIP) will recognise (and reward) this opportunity. Failing to account for the cost-saving potential of CER would result in higher energy costs and unnecessary investment in new infrastructure, ultimately driving up bills for all New Zealanders. By embracing CER, we can lower system costs for everyone, while building a more secure, resilient and efficient energy system.

Energy security and resilience

Energy security and resilience should be better recognised as key priorities in the NIP.
To address climate and energy transition challenges, the plan must focus more on localised energy generation and reducing reliance on vulnerable centralised grids. By supporting CER in homes, farms, and businesses, energy resilience and security can be enhanced. A key benefit of CER lies in the significant boost it would provide to the resilience and security of our energy system. The widespread adoption of CER, alongside implementation of the necessary system and regulatory changes, as explored in this consultation, can strengthen Aotearoa NZ's energy resilience. The NIP should ensure that local energy solutions are supported by the right infrastructure and regulatory frameworks, building a more resilient and sustainable energy system for the future.

For rural communities, especially, this represents a potential to transform farms into self-sufficient 'power plants'. As highlighted in our *Electric Homes* and *Electric Farms* reports, generating and storing electricity at the household, farm and business levels provides significant local economic and environmental advantages. But moreover, it also offers protection against price fluctuations and resilience to supply disruptions by reducing dependence on grid supply.

For example, farms that generate and store their own electricity are more resilient to grid blackouts, and when they electrify their machines they are not affected by disruptions to fossil fuel supply chains, natural hazards, and price volatility in global oil markets (regarding vehicles and generators). Distributed generation on farms can act as local back up supply in events where lines go down. Electric farms can continue production in spite of disruptions, avoiding the lost income which compounds the economic effects of climate-related shocks. This buffers and builds resilience in our regional communities. While different contexts, the same largely holds true for homes and small businesses as well.

Embedding foresight in decision making

Any analysis of Aotearoa NZ's energy infrastructure future must recognise the inevitability of widespread solar and battery adoption behind the meter. As the technology costs continue to

decrease, homes, farms, and businesses will increasingly invest in rooftop solar and battery systems because they offer the lowest electricity costs. This shift will happen regardless of what the industry considers the most capital-efficient pathway for large-scale infrastructure. Solar energy will collectively contribute to large-scale generation, while batteries provide highly distributed, firm energy during peak demand.[2] As a result, homes, farms, and businesses are becoming key components of the nation's energy infrastructure even as industry stakeholders and regulators work to adapt to this shift.

Embedding foresight into relevant decision-making is critical to ensuring that our energy system is shaped in a way that supports this transformation. Anticipating the increase in local energy production and integrating this into long-term planning will help support a successful transition through avoiding missed opportunities and inefficiencies. Proactively updating regulatory frameworks, network infrastructure, and market models to accommodate CER is essential for creating the type of energy future that New Zealanders want and deserve. We were excited to input into the recent MfE & DPMC Long Term Insights Briefing Submission on Building resilience to Hazards for this very reason, and refer you to this work if you are interested in understanding more about the role that electrification can play in building long term resilience in Aotearoa NZ.

Small decisions can have a large impact

The current focus on macroeconomic indicators like GDP and inflation to guide investments often overlooks the cost-effective potential of micro-level (‘dinner table’) decisions – such as household, farm, and business electrification – to address infrastructure challenges. Prioritising these decisions, with targeted government support, can drive a broader shift in infrastructure. As electrification uptake increases, the overall system will become more efficient and sustainable.

The occurrence of positive tipping points is empirically observable, especially in renewable energy and electrification technology.[3] This is driven by the "learning curve" effect, where widespread adoption of technologies like CER reduces costs through economies of scale and innovation. For instance, electricity from solar PV was 710% more expensive than the cheapest fossil fuel-fired option, but by 2022 it was 29% less expensive against the same benchmark.[4] In Aotearoa NZ, policies supporting electrification can further reduce costs and improve infrastructure competitiveness.[5] By focusing on these micro-level actions, we can create a self-reinforcing cycle that addresses infrastructure challenges and delivers macroeconomic benefits.

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[2] As noted elsewhere by Rewiring Aotearoa, if 5% of households installed batteries, their combined output at peak times would rival NZ’s largest power station (Manapouri).

[3] Sharpe, S., & Lenton, T. M. (2021). Upward-scaling tipping cascades to meet climate goals: plausible grounds for hope. Climate Policy, 21(4), 421-433.

[4] IRENA (2023). Renewable Power Generation Costs in 2022. International Renewable Energy Agency (IRENA).

[5] Making existing systems more cost-effective, adaptable, and resilient, thus providing greater value for money and better long-term outcomes.

Part 2: Answers to consultation questions

Section one: Why we need a National Infrastructure Plan

1. What are the most critical infrastructure challenges that the National Infrastructure Plan needs to address over the next 30 years?

The NIP must address both short- and long-term infrastructure challenges to meet immediate needs while supporting future innovation and building resilience. Over the next 30 years, political, economic, social, and environmental shifts will shape our infrastructure. Absolutely central to this will be energy infrastructure, and how it enables energy sovereignty and security in Aotearoa NZ. Urgent short-term interventions are needed to shape the pathway for this. However, we also need to consider timeframes beyond 2050, when international climate targets must be met.

In addition to the key insights mentioned in Part 1 of this submission, below we provide some more specific infrastructure challenges that we think are crucial to consider.

Resilience to physical climate risks and natural hazards
Aotearoa NZ's hazardscape consists of earthquakes, landslides, storms and floods, tsunami and volcanic risk, and climate change is exacerbating many of these hazards. Rising sea levels, along with more frequent and severe extreme weather events (and the above hazards), threatens a wide range of infrastructure across the country. Coastal areas, in particular, face increased risks to critical infrastructure such as roads, ports, and housing, with the potential for flooding and erosion. At the same time, increasingly severe storms, heavy rainfall, and cyclones will disrupt transport networks, power grids, water systems, and communications. Rural and remote regions are also vulnerable to these impacts, with vulnerable agricultural infrastructure and potential flow on supply chain issues.

Physical climate risks highlight the urgent need for robust, climate-resilient infrastructure that can adapt to a rapidly changing environment. Building resilience to hazards is critical and urgent for shaping our country's future in an increasingly complex and uncertain climate. And Aotearoa NZ's unique natural environment presents many opportunities to build resilience across our infrastructure and systems. In particular, energy infrastructure faces significant challenges from climate-related disruptions all of which can impact the reliability and security of energy supply. Strengthening energy systems to withstand these impacts is crucial to maintaining both energy security and the transition to a low emissions economy.

Critical infrastructure
Aging and vulnerable critical infrastructure requires significant investment to maintain, upgrade, or replace. In recent years, we've seen failures in critical infrastructure not only from worsening natural disasters and climate risks, but also from age.[6] The cost of further neglecting these issues is high, with the potential for widespread service interruptions,

[6] The 2023 Aotearoa-New Zealand Critical Lifelines Infrastructure National Vulnerability Assessment provides context on critical infrastructure networks, services and assets, as well as each sector's vulnerabilities to hazards. Electricity, fuel & air, gas, roads and rail, three waters, telecommunications and flood protection are highlighted as key vulnerability issues - all of which are related to energy infrastructure.

economic losses, and increased costs of repair. In the face of these vulnerabilities, the NIP must prioritise ensuring that critical infrastructure is resilient, efficient, and fit for purpose to handle the challenges of the future.

A 2019 LGNZ study estimated that $8 billion of local government infrastructure is exposed to a 1.5m sea level rise. This includes $4 billion in three waters, $1 billion in roading, $1.2 billion in buildings, and $1.8 billion in other infrastructure. Beyond physical damage, these risks also threaten economic development, community health, safety, and social support systems. This only reinforces the fact that as Aotearoa NZ's population and the effects of climate change increase, so too do the consequences of infrastructure failure.

Decarbonisation

Decarbonisation is one of the most pressing infrastructure challenges Aotearoa NZ faces over the next 30 years. Achieving our climate commitments will require transforming key infrastructure sectors by decarbonising energy systems, electrifying transport networks, and reducing emissions from industrial and construction infrastructure. This transition presents a dual challenge: not only emissions reduction, but also ensuring that infrastructure can support this shift at scale. Upgrading grids for renewable energy, electrifying the transport sector, and redesigning industrial infrastructure are essential steps. Electrification is not a cost, but an investment in long-term economic resilience – lower energy costs, increased household disposable income, improved public health, and resilience to climate impacts.
To drive this transformation, future-focused economic analysis is crucial. Delaying the shift from fossil fuels will worsen negative pressures. The NIP must prioritise balancing short-term costs with long-term benefits and focus on decarbonisation.

Capability and capacity shortages

The NIP should also aim to address skills and investment shortages in training and education for the trades, engineering, and technology sectors. Our research has shown that it would be helpful to better understand the systemic constraints that inhibit uptake of small-scale renewable energy generation and electrification of households, farms and businesses. For example, our work on upstream conditions relating to electrification uptake identified a green skills shortage associated with residential solar installation; a knowledge gap and lack of clear information around household electrification; and the critical role of finance in enabling uptake of solar technology to build household, farm and business level energy resilience.

Drawing a thread between the green labour market, energy security in communities (especially post-disaster), and adaptation of energy infrastructure in the context of natural hazards is much needed work in Aotearoa NZ. As part of this, exploring market incentives, regulatory enablers and policy direction for recognising the benefits of electrification is nascent thinking that this NIP is well placed to contribute towards.

Regional disparities

Finally, also of concern is the growing gap in infrastructure quality between urban and rural areas. The NIP needs to prioritise equitable distribution of infrastructure upgrades to areas that need them most, ensuring that our rural and remote communities don't get pushed to the wayside.

2. How can te ao Māori perspectives and principles be used to strengthen the National Infrastructure Plan's approach to long-term infrastructure planning?

Te ao Māori perspectives and principles must be at the centre of the NIPs approach to long-term infrastructure planning. By working closely with Treaty Partners to ensure that any such development is sustainable, inclusive, and culturally aligned with the needs and values of Māori communities, long term infrastructure planning will be greatly improved for Aotearoa NZ. The Principles of Te Tiriti are key to this and we advocate for early and sustained engagement with Māori on any long-term infrastructure planning.

Through embedding kaitiakitanga, manaakitanga, whanaungatanga, and rangatiratanga (through meaningful engagement processes with Māori) the plan can not only reflect te ao Māori values and priorities, but also create infrastructure that represents and benefits all New Zealanders, respects the environment, and promotes social equity for future generations.

There are also opportunities to build on and scale existing leadership from marae and papakainga in the area of electrification. For example, the work that has been led out of Martinborough's Hau Ariki Marae to install 68 solar panels and a battery system (generating 30kw) to build energy resilience in the area. This work was funded by an MBIE grant and the application was supported by the South Wairarapa District Council. Greater funding and capacity support for planning from local and central government for these projects can support greater opportunities for regional innovation and for Māori to play a leadership role.

Section two: Long-term expectations

3. What are the main sources of uncertainty in infrastructure planning, and how could they be addressed when considering new capital investments?

We welcome the focus on uncertainty in this consultation. We subsequently propose that the environmental law principle of applying a precautionary approach be applied in conditions where there is significant uncertainty in making a decision, especially with any risk of lock-in and path dependency. For example, a precautionary approach to investment in infrastructure that is likely to lock in emissions would mean applying a 'better safe than sorry' lens to planning decisions.

In our opinion, the main sources of uncertainty in infrastructure planning include;

- funding availability and access and budget constraints;
- political shifts driven by leadership changes and regulatory adjustments;
- environmental challenges from climate impacts and natural disasters;
- rapid technological advancements; and
- demographic trends, including population growth and evolving urbanisation.

To address these uncertainties, consider integrating long-term strategies, scenarios analysis, risk management approaches into the plan and foster collaboration between relevant stakeholders to ensure adaptability and resilience in new capital investments.

Section three: Existing investment intentions

4. How can the National Infrastructure Pipeline be used to better support infrastructure planning and delivery across New Zealand?

As previously mentioned, Aotearoa NZ's main infrastructure challenge lies in transforming investment into robust, efficient, and effective infrastructure. In the case of energy infrastructure (in the context of our wider climate and cost of living policy goals) this is critical and urgent. This translation challenge reveals an underlying efficiency problem at multiple levels. To address this, maximising the potential of *existing* infrastructure assets must become a top priority for the NIP. By improving the efficiency and extending the lifespan of current systems and assets, we can realise significant cost savings, environmental and economic benefits without resorting to new, slow, resource-intensive projects.

We know that electrification is key to improving efficiency, resilience and sustainability across Aotearoa NZ's infrastructure. By transitioning to electric-powered systems in transport, industry, and energy generation, we can lower operational costs, strengthen resilience, reduce emissions, and enhance the performance of existing assets.

A key part of unlocking this potential is to recognise the role that homes, farms and businesses can play in being a valuable (and valued) part of our energy infrastructure. Existing and future CER assets are an untapped resource within our energy system. Recognising homes, farms and businesses as potential energy infrastructure not only avoids unnecessary capital expenditure but also accelerates progress toward meeting climate commitments. Instead of building new infrastructure, we should prioritise optimising and electrifying what we already have, ensuring long-term value and greater efficiency for a sustainable future. CER must be explicitly recognised in the NIP to support this rethinking of energy infrastructure as something much wider than our traditional understanding of energy assets.

Section four: Changing the approach

5. Are we focusing on the right problems, and are there others we should consider?

As per our response to Section three (Question 4), we believe that Aotearoa NZ needs a reframe of what is considered valued (and valuable) energy infrastructure.

Investment management: Stability, consistency and future focus

6. What changes would enable better infrastructure investment decisions by central and local governments?

To reiterate points made throughout this submission, we believe the following high level areas should be addressed throughout the NIP:

- Prioritisation of vulnerable infrastructure: see our answer to Question 7.

- Reframing energy infrastructure valuation: see our answer to Question 4.

- Transparent and accountable decision-making: investment decisions should be based on transparent processes and robust data, ensuring accountability and a solid evidence base to guide decisions about which projects provide the most value to communities and the economy in the long-term.

- Stronger foresight: more emphasis should be placed on anticipatory (rather than reactive) governance/decision making. See our discussion of '*Embedding foresight in decision making'* in *Part 1: Key Insights*.

- Alignment with domestic and international climate commitments: future investments should ensure that projects contribute to emissions reduction, resilience to climate impacts, and the transition to a low-carbon economy. See our answer to Question 3.

- Better engagement and collaboration with Māori: see our answer to Question 2.

By addressing these areas, infrastructure investment decisions can be improved, ensuring that they are more strategic, resilient, and aligned with long-term sustainability goals.

7. How should we think about balancing competing investment needs when there is not enough money to build everything?

Balancing competing infrastructure needs, especially with limited resources, requires a strategic, foresight-driven approach. It requires thinking creatively about our existing assets and how these can be activated within the economy to deliver on policy priorities. But this challenge also requires acknowledgement that a certain level of investment is needed to drive growth.

A priority matrix (both for central and local government) can guide decision-making for investment by categorising projects based on impact and urgency. For example, high-impact, high-urgency projects like upgrading transport networks, improving water systems, or enhancing energy resilience in rural areas are likely to need prioritisation given their current state and vulnerabilities. Expanding renewable energy and electrifying sectors should be integrated into infrastructure planning alongside immediate priorities, as doing so will help reduce costs for both government and consumers. It will also contribute to a more distributed energy system, enhancing infrastructure resilience and reducing vulnerability to disruptions (as well as provide other benefits aforementioned).

It's important to recognise that infrastructure needs vary by community. For example, urban areas may prioritise upgrades to existing systems, such as transport networks or energy grids, while rural areas may focus on improving access to basic services like electricity or water, or developing off-grid solutions. Tailoring investments to specific community needs ensures a more effective and equitable approach to infrastructure development. This requires not only a tailored investment strategy that balances immediate priorities with long-term sustainability but also greater devolution to local government, enabling more locally driven decision-making and solutions that reflect regional contexts and priorities.

Workforce and project leadership: Building capability is essential

8. How can we improve leadership in public infrastructure projects to make sure they're well planned and delivered? What's stopping us from doing this?

When we talk about public infrastructure projects, we imagine large-scale, long- term infrastructure investments. And certainly, these are critical to get Aotearoa NZ's economy moving, and there is a need for strong leadership to deliver on these. But there is also a more devolved, decentralised leadership that is emerging in energy infrastructure developments - the electric revolution. Farms, businesses, and households have a key role to play in investing, building, and maintaining energy assets that can contribute to energy resilience and sovereignty in Aotearoa NZ's energy system. These should also be considered public infrastructure projects - and we should also be asking what capabilities are needed to ensure these are well planned and delivered, rather than ad hoc.

This means we not only need greater centralised leadership capabilities, but we need to be polycentric in our approach - enhancing regional capacity and workforce capabilities to deliver on the electric infrastructure we need across Aotearoa NZ.

What currently stops us from investing in these capabilities is a lack of recognition that household, farm and business assets can contribute to energy infrastructure in Aotearoa NZ. With this recognition, we might see greater financial support for uptake of these measures, better energy system rewards for individuals or businesses exporting energy back to the grid, and greater investment into regional skills and taskforce capabilities for solar installation. We spoke more about our work in this area in *Part 2: Capability and capacity shortages.*

9. How can we build a more capable and diverse infrastructure workforce that draws on all of New Zealand's talent?

Please refer to above and *Part 2: Capability and capacity shortages.*

Project costs: Escalation means less infrastructure services

10. What approaches could be used to get better value from our infrastructure dollar? What's stopping us from doing this?

Please refer to our answers to Questions 3, 4, 6 and 8, as well as *Part 1: Key Insights*

Asset management: Managing what we already have is the biggest task

11. What strategies would encourage a better long-term view of asset management and how could asset management planning be improved? What's stopping us from doing this?

With battery prices continuing to decrease and electricity rates expected to keep rising - as

they have historically with inflation - solar energy is poised to become even more cost-effective over time (more detail is available in our recent Investing in Tomorrow report). Demand-side generation and storage therefore represents the quickest and most affordable methods for increasing renewable energy and reducing emissions. In many cases, the cost of financing a solar and battery system has already fallen below the average price of grid electricity for homes. However, existing energy pathways and industry scenarios[7] have significantly underestimated the potential advantages of this kind of widespread distributed electrification. We recently discussed this in the Delivered Cost of Energy 2024 paper.

This creates strategic opportunities (to be actioned in the NIP) to manage energy assets in a more distributed way, where Aotearoa NZ's homes, businesses, and farms are recognised to play a central role in the solution. The current focus on large-scale infrastructure limits our ability to effectively manage energy assets and fully realise the potential of a more flexible, community-driven energy system. See discussion in *Part 1: Key Insights* for more information.

Resilience: Preparing for greater disruption

12. How can we improve the way we understand and manage risks to infrastructure? What's stopping us from doing this?

Electrification is not only about reducing emissions, but also about adapting infrastructure to changing risks. Understanding how to protect and adapt key energy systems from natural hazards will be essential for ensuring their long-term resilience.

Distributed grid infrastructure through energy-sovereign homes, businesses and farms that rely on their own electricity assets is one way to reduce vulnerabilities in our energy system. Improving our understanding of what is classed as energy infrastructure helps us consider a more decentralised energy system that is more resilient to shocks and disruptions.

Investment into community solar (as an energy resilience measure) can provide support during crises and help reduce pressure on emergency services in the aftermath of a severe weather event. Installing solar in existing community hubs like marae and kura kaupapa is an opportunity to build community energy resilience and support a distributed, empowered disaster response.

For example, during Cyclone Gabrielle, several stories emerged from Hawke's Bay of households with solar panels and battery storage that were able to maintain electricity and stay resilient to the impacts of the storm. Many of these homes also opened their doors to neighbours, providing support and helping to strengthen community resilience in the aftermath of the disaster. These examples demonstrate how solar and battery systems can play a crucial role in ensuring energy security during extreme weather events.

[7] For example, ERP2, BCG, BusinessNZ, and the Climate Change Commission.

Decarbonisation: A different kind of challenge

13. How can we lower carbon emissions from providing and using infrastructure? What's stopping us from doing this?

Please refer to *Part 1: Key Insights*, where we highlight the potential of households, businesses and farm energy assets contributing towards emissions reduction in Aotearoa NZ.

Institutions: Setting the rules of the game

14. Are any changes needed to our infrastructure institutions and systems and, if so, what would make the biggest difference?

Please refer to *Part 1: Key Insights* and other relevant responses in *Part 2: Answers to consultation questions* where we highlight the potential of households, businesses and farm energy assets (and required regulatory shifts) in contributing towards better infrastructure outcomes in Aotearoa NZ.

Network pricing: How we price infrastructure services impacts what we think we need

15. How can best practice network pricing be used to provide better infrastructure outcomes?

We have decided not to answer this question.

Regulation: Charting a more enabling path

16. What regulatory settings need to change to enable better infrastructure outcomes?

To enable better infrastructure outcomes, regulatory frameworks and incentives must be reevaluated to support more efficient, flexible, and cost-effective solutions. And as such, recognise CER as a key part of the solution and as essential components of Aotearoa NZ's energy future. In addition to the points we have raised in general insights (see Part 1) and high level focus areas (see our answer to Question 6), we recommend the following measures to improve network management and support better integration of CER specifically:

1. EDB's should be regulated to value the peak reduction by homes, farms and businesses on a level playing field rather than have a supply side bias against consumers. We have outlined this in our paper: Symmetrical Export Tariffs.

2. EDBs and Transpower should face stronger regulated requirements and a greater burden of proof to demonstrate that they have fully considered non-network solutions

as lower-cost alternatives when planning and investing in network upgrades.

3. The Commerce Commission should introduce regulated distribution network utilisation rates, which increase incrementally over time.

Regulatory alignment and industry-wide compliance will be essential for better infrastructure outcomes generally. Regulations governing CER for homes, farms, and businesses should have been updated by now. Although early systems have been in place for over a decade, and 30,000 new installations have been completed in just the past three years, outdated regulations continue to hold back progress. These regulations remain burdened by unnecessary red tape and a supply-side bias that tends to downplay the value of demand-side generation.

Energy system governance – regulators and policymakers – must not only recognise the inevitability of this shift, but also strategically harness the potential of CER to optimise the broader energy system. By doing so, they can reduce the need for costly investments in distribution and transmission infrastructure, while creating a more resilient and secure energy network. Unnecessarily expanding distribution and transmission infrastructure is likely to be the largest driver of rising consumer bills in the coming decade. Avoiding this costly build-out should therefore be a central focus, as it represents the most effective way to keep energy bills affordable for New Zealanders in the future.

What happens next?

17. Do you have any additional comments or suggestions that you would like us to consider as we develop the National Infrastructure Plan?

No.