



TRANSPOWER

A future grid blueprint for Aotearoa



Consultation 1:
Imagining Aotearoa in 2050

July 2025

Te Kanapu
Future Grid Blueprint

Background

As owner and operator of our national electricity grid, Transpower has a role to play to enable the electrification and future economic growth of Aotearoa.

For the next year and a half, we'll be putting in the groundwork to ensure we have a reliable, resilient and affordable national electricity grid in the future.

We've started by thinking about how Aotearoa will look in 2050 – our economy, our population, how we'll live, work and play – so that we can understand the kind of energy infrastructure we're going to need to support that future.

How will we be living in 2050? What will our biggest exports be? Where will energy be generated? Where will we use it most? Will we be making the most of our abundant renewable energy resources to build our economy? What other things will be driving our economy? What will Aotearoa be "world famous" for in 2050?

We're looking for your views on the future of our economy and the role that energy will play. Tell us what you know, from your areas of expertise. What should we be considering and why? All contributions matter – we're seeking a range of views from people across the country.

Why we're doing this

Transpower needs to understand how Aotearoa might look in 2050 so we have time to plan and build the national electricity grid needed to help deliver that future.

It's not easy planning that far ahead. We usually plan 10-15 years into the future, so thinking about the electricity Aotearoa will need in 25 years or more is charting new territory for us. That's why we're engaging with stakeholders early and consulting widely to seek views from people, businesses and organisations.

We'll use the information we gather to build and publish a grid blueprint for the future, to guide Transpower's investments in the national electricity grid and the way we manage the electricity system. The grid blueprint will also support industry and those in the energy sector with their long-term planning.

Once we have the grid blueprint in place, we'll keep it current by updating it every few years.



Consultations

Transpower is collaborating with New Zealanders to develop a blueprint for the national electricity grid of the future. We're seeking views from people, businesses and organisations from across the motu.

We'll have three consultations in 2025, and we'll release a draft grid blueprint in July 2026, before releasing the final grid blueprint later in the year.

There are four main parts to the work:

1. Finding out as much as we can about the future (such as future economy, energy, technology and megatrends) and using that information to develop our scenarios.
2. Developing electricity forecasts for each of those scenarios and looking at how the electricity needed might be generated.
3. Analysing and identifying what the national electricity grid needs to look like by 2050 across our scenarios.
4. Confirming any near-term grid upgrades needed in the 2030s that are required in most scenarios.



Timing

1	2	3	4	5
Imagining Aotearoa in 2050	Potential scenarios	Future direction	Draft grid blueprint	Te Kanapu future grid blueprint for Aotearoa
July 2025	Sept 2025	Nov 2025	July 2026	Later in 2026
Gathering your views on the future of Aotearoa – what will 2050 look like?	Draft scenarios based on your insights and our research, and draft generation and load assumptions.	Updated scenarios, generation and load assumptions plus our draft methodology and potential investment options.	The draft grid blueprint, combining all insights and research, including low-regrets grid investments.	We'll publish our first grid blueprint.

Consultation 1:

Imagining Aotearoa in 2050

We're looking forward to finding out your views on our country's energy.

Please read the considerations before you fill in the survey. [Click here](#) to complete the online survey or use your phone to scan this QR code.

If you have any questions, or are having trouble accessing the survey, please email us at feedback@transpower.co.nz.

Some things to consider before filling in the survey

Two key assumptions

It's hard to imagine a future without any parameters, so we're starting you off with two main assumptions.

In 2050, Aotearoa:

1. remains committed to achieving net-zero carbon emissions
2. has a growing and thriving economy

Other things to consider

Increase in electricity use

- Kiwi households and businesses are using more electricity year on year as new technologies and useful tools become increasingly commonplace.
- Electricity is predicted to go from being 25% of total energy use (as it is today) to around 58% of energy use by 2050, as we invest in electricity-based technologies for our homes, businesses and transport.

Generation is changing

- The way we generate electricity is undergoing substantial change, with renewable energy such as wind and solar playing a bigger role than ever.
- The uptake of rooftop solar, batteries and electric vehicles are also creating new opportunities and complexities for how we manage the electricity system.

Disruptors

- We expect there will be some significant disruptors to our energy demand, such as an increase in datacentres or the growing production of sustainable fuels.
- It's possible that the energy system in Aotearoa will rapidly transform, and our uptake of new energy technologies could enable us to become an exporter of energy.

Exports and economy

- Food and fibre may remain a significant source of export earnings, or Aotearoa could pivot to a more technology-centred economy where IT intensive services drive growth.
- AI could transform our manufacturing and commercial services.
- Aotearoa could leverage our natural resources and land-based sectors, including mining.
- Our export income could be boosted by attracting a green premium.

How we'll use the information

The information we gather from this consultation will help us to develop possible future scenarios for Aotearoa. These scenarios will cover both a broad vision for the future and specific detail that's important for the electricity sector, such as assumptions about growth, generation and load, and future technological change.

Everyone is welcome

We're interested in a wide range of views on the future of our economy, how we can grow to realise this future, and the role that electricity will play. You don't need to be an energy expert to provide valuable insights.

If you are part of the energy sector, we're keen to hear your thoughts on more specific aspects of the energy system, and where and when new generation and load will emerge.

Next steps

In September, we'll publish a summary of submissions on our website. We'll be using your insights to develop a range of possible scenarios for the country's energy future.

As outlined in our 2020 research **Whakamana i te Mauri Hiko**, future scenarios are an important basis for our work. They enable us to consider how our national electricity grid would need to develop to enable or respond to potential scenarios.

We can use known trends that we expect to continue into the future, such as policy, technological or economic factors. We are also thinking about additional drivers or 'shocks' that could occur to influence the direction and shape energy scenarios for Aotearoa.

We do believe that the way electricity is transmitted and distributed will change, be it through the adoption of new technologies, the expansion of consumer energy resources, increasing decentralisation of generation, or through greater use of non-transmission alternatives.

We will share our draft future scenarios with you in our second consultation.

Imagining Aotearoa in 2050

Now's your
chance to tell us
what you think!



[Click here](#) to complete the online survey or use your phone to scan this QR code.



A bit about us

Transpower

Transpower is a state-owned enterprise. We build, maintain and run the country's national electricity grid – which is the infrastructure (such as transmission towers and cables) that transports electricity from where it is generated to where it is used. We also operate the electricity market system, but we don't own, generate or sell electricity.

Te Kanapu

Te Kanapu is the name of our initiative to develop and publish a grid blueprint support a thriving and productive Aotearoa.

Te Kanapu means both 'lightning' and 'bright', so Te Kanapu speaks to the electrification and the illumination of our country and Transpower's goals for a bright, energised future.

We expect that the way Aotearoa produces and consumes energy and electricity in 2050 will be different than today, with more renewables and more distributed energy. Technology will play a bigger role.

We also expect more regional growth in some parts of the country with more people in more places, needing more electricity.

Te Kanapu builds on Transpower's 2020 **Whakamana i te Mauri Hiko** work, which explored the opportunities available to Aotearoa if we were to electrify our economy. With electrification now well underway, Te Kanapu will help Transpower identify how to best invest in the national grid and manage the electricity system for the future. The grid blueprint will also support industry and others in the energy sector with their long-term planning.

In late 2026, following extensive community and industry engagement, we will publish our first grid blueprint, outlining how we would need to invest in the grid through to 2050 and beyond, to best enable a growing economy and a thriving net-zero Aotearoa.



Find out more

Email us

feedback@transpower.co.nz

Visit our website

[About us | Transpower](#)

[Te Kanapu | Transpower](#)

Other relevant consultations and publications

Others in the sector are also thinking about the future of energy in Aotearoa.

- Our future is digital – Electricity Authority
- Green paper – Decentralised electricity system – Electricity Authority
- Te Waihangā – Draft National Infrastructure Plan
- Scenarios – BusinessNZ Energy Council
- What Will New Zealand Be Known for in 2050? Boston Consulting Group