TRANSPOWER

Tararua Enabling Renewables: Major Capex Proposal Long List Consultation

Overview

May 2026

Executive summary

Transpower is investigating possible electricity infrastructure investments in Tararua and Wairarapa, to unlock significant new renewable generation potential and boost transmission capacity in the region. We have defined the Tararua and Wairarapa region and the relevant transmission lines as the region contained within the highlighted area below.

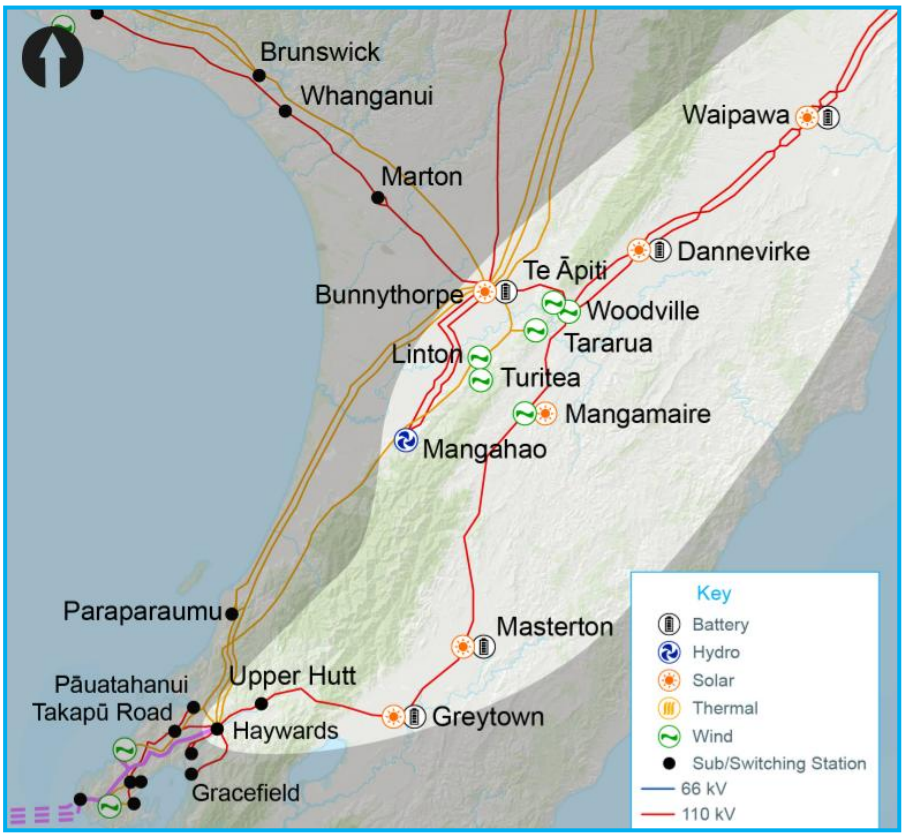

Figure 1: Geographic map of the Tararua and Wairarapa region

The Tararua and Wairarapa region is experiencing a surge in new renewable generation projects. There is over 1,000 MW of new solar and wind generation in the immediate Transpower connection pipeline (delivery and investigation stage)[1] and further projects in earlier development stages, but not all are committed yet. Enabling (anticipatory) transmission investment could unlock significant renewable capacity.

By taking a broad regional view to possible network upgrades, this long list consultation explores how the transmission network could be developed to maximise our ability to connect new renewable energy generation. This will unlock regional economic opportunities, national electrification, and support more affordable electricity prices.

We are considering both upgrades to the existing 110 kV network, and the addition of 220 kV connection and interconnection assets in the region. This coordinated regional approach could more efficiently enable large-scale renewable generation development and improve connection with the existing 220 kV core grid at Bunnythorpe. We are seeking feedback, particularly from generation developers to inform and shape our transmission plans. Any information regarding project updates,

[1] Transpower: What's the latest with grid connections?

additional early-stage projects, timing, location and potential benefits of specific connection options would be beneficial.

Consulting with local communities and stakeholders (such as mana whenua, councils and developers of both electricity demand and generation projects) is an essential part of developing infrastructure. Your feedback will help us refine the input assumptions that underpin this enabling investment, especially project timing, location and preferred grid connection approaches. This will support our assessment of whether more ambitious development plans, including the 220kV aspects of a coordinated regional approach, would be economic and what renewable generation potential they could unlock.

This consultation paper sets out a 'long list' of investment components that may contribute to meeting the investment need (e.g., upgrading existing lines, and building new assets like lines or cables). It recognises there may be non-transmission solutions (NTS) which could reduce or delay the need for additional investment in network upgrades, keeping costs down for New Zealanders.

Following this consultation, our next step is to refine the 'long list' into a 'short list' of development plans (each combining several of the long-listed components). We will then test how the regional transmission system could evolve under a range of generation scenarios, including a credible range of uncommitted generation, to explore the renewable generation potential of the region. We will explore how these short-listed development plans could unlock generation capacity, and influence generation project investment decisions. This will help address questions of which input assumptions and generation scenarios need to be true to make the grid investment options economic, and vice versa, and demonstrate how a coordinated regional approach may unlock renewable generation. Critically, information about new projects in the region and the certainty associated with these projects will help inform our analysis.

Consultation at a glance	
Purpose of the consultation:	To refine our assumptions and understanding of future load and generation developments, and when and where grid constraints may emerge. This will support our testing of when ambitious development plans (including a coordinated 220 kV regional approach) would be economic and what renewable generation developments they could unlock.
What we want feedback on:	• Potential load and generation projects and expected timing in the Tararua and Wairarapa region • Grid connection options and grid upgrades for new load and generation projects • Generation and demand scenarios used for this consultation • Long list of components, including a coordinated 110 kV or 220 kV regional upgrade, and NTS approach
Out of scope:	• Selection of a preferred option or development plan; this will be covered at the short list consultation stage • Upgrades to the existing 220 kV core grid; these are targeted in separate Major Capex Proposal (MCP) investigations

1 Purpose of this consultation

As the first step in the MCP process, we are consulting on matters including the investment need, long list of options, key assumptions and scenarios. This consultation is intended to improve the information base for the 'Tararua Enabling Renewables' investigation by refining assumptions about potential new load and generation in the region. This will support us to develop a refined short list of development plans, informed by the feedback received. We will then assess the extent to which each short list development plan enables additional renewable generation to be built and dispatched, and how much of the region's renewable generation potential it could unlock.

This consultation seeks feedback to support two linked outcomes:

- Clearer investor and stakeholder understanding of how future transmission capacity could unlock renewable generation in the Tararua and Wairarapa region.
- More robust and credible generation scenarios, informed by an up-to-date view of the generation project pipeline and developer signals.

To support these outcomes, we seek feedback regarding:

- information on potential generation projects in the region, including size, timing and their preferred grid connection options
- the long list of components that could enhance transmission capacity to enable connection of significant new renewable generation developments in the Tararua and Wairarapa region
- demand and generation scenarios that allow us to test the regional network that is likely to become constrained as generation is built
- the economic assumptions and parameters we plan to use in our analysis.

Major capex proposal process under the Capex IM

Where a project to enhance the capacity of Transpower's electricity grid is expected to cost more than $30 million,[2] we are required to submit a Major Capex Proposal (MCP) to the Commerce Commission for approval. Approval then enables us to fund the project and to recover the costs of the investment from our customers on completion.[3] We expect that this investigation will lead to an MCP because most of the options increase the capacity of the grid and we expect overall capital expenditure to exceed the $30 million threshold. As this is an enabling renewables investment, we may also use non-standard assumptions and approaches where appropriate and may consider alternative funding arrangements.

[2] The base capex threshold is $30 million, as per Part 1 'General Provisions' of the Capex IM.

[3] Investments that are not MCPs are not individually approved by the Commission and are funded through our base capital expenditure.

2 The need for investment

The Tararua and Wairarapa region sits at the intersection of key transmission corridors and hosts significant renewable resources, with consented wind and solar projects in Transpower's connection pipeline, but not all are committed yet.

The investment would unlock significant renewable generation opportunities. The Wairarapa has consistently been identified as one of New Zealand's strongest wind generation regions. Our Net Zero Grid Pathways (NZGP) generation expansion plans and analysis indicate that the Wairarapa is particularly attractive for wind farm developments due to high capacity factors, but also highlights uncertainty in near-term investor appetite.[4] We consider that targeted transmission investment is likely to support regional economic development, accelerate national electrification, and contribute to more affordable electricity prices.

We also consider that if Transpower leads in coordinating how multiple generation developments connect, it could reduce the amount of transmission infrastructure ultimately required and lower overall costs, compared with connections progressing in a piecemeal way.

There is significant interest from generation developers in connecting new wind and solar farms and battery energy storage systems (BESS)[5] to the 110 kV network between Waipawa, Woodville, and Greytown.[6] If all projects in the connection pipeline were to connect and generate concurrently, export from the regional 110 kV network would exceed existing capacity. It is anticipated that 220 kV connections will be required to facilitate significant wind generation developments.

Where constraints are expected to emerge in the existing 110 kV network

The Tararua and Wairarapa region comprises 220 kV and 110 kV transmission circuits, with the 110 kV network in the eastern part of the region supplied through 220/110 kV interconnecting transformers at Bunnythorpe and Haywards. Power flow through the region varies depending on generation output, HVDC transfer, and loads within and outside the region.

The potential transmission capacity constraints in the 110 kV network can be categorised into four key areas (highlighted in the single-line diagram in Figure 2)[7] which are explained in more detail in Attachment 1 section 1.2:

1. Bunnythorpe–Woodville circuits; rated at 57/70 MVA (summer/winter)
2. Dannevirke–Woodville circuits; rated at 50/62 MVA (summer/winter)
3. Masterton–Greytown–Upper Hutt circuits; Greytown–Upper Hutt section rated at 63/77 MVA (summer/winter)
4. Haywards–Upper Hutt circuits; limited by a short cable section at Haywards.

Figure 2 additionally illustrates the location of possible new generators (G1 to G19) which are presented in section 3 of this document.

---

4 Transpower: Transpower NZGP Scenarios Update.pdf

5 Several solar farm projects are considering BESS as potential further development stages.

6 Transpower: What's the latest with grid connections?

7 The diagram also shows the generation projects relevant for this investigation, which are described in more detail in the next section.

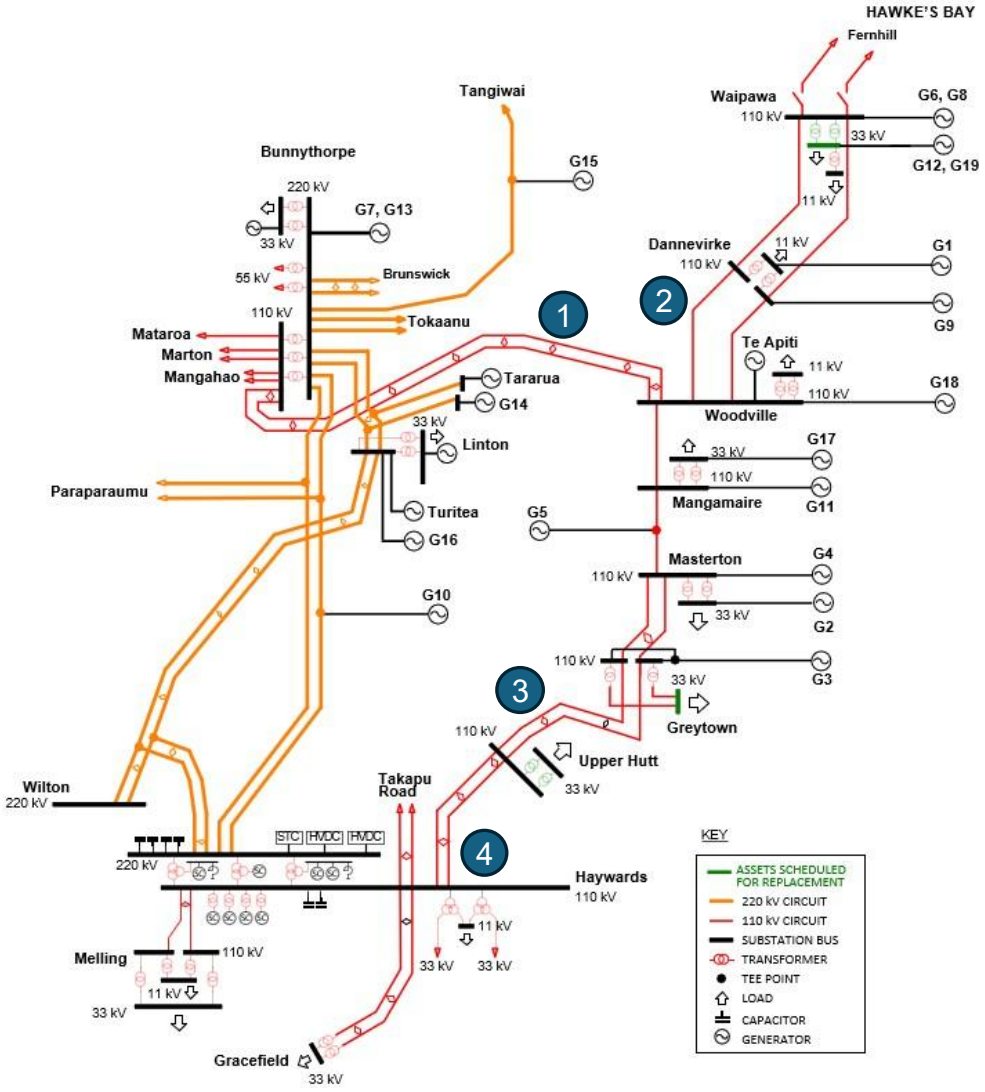

Figure 2: Single-line diagram of the regional transmission system

Why consultation is central to this 'enabling renewables' investment

This project is different from more conventional upgrades because the timing, scale and location of future generation connections are uncertain. The purpose of consulting now is to improve the information base for this MCP investigation by:

- **Refining project inputs** – refining our assumptions about which projects are credible and likely to progress, and when, where and how they may ideally connect
- **Testing what would need to be true for ambitious options** – using the updated inputs to test the conditions under which a more ambitious development plan (including potential 220 kV connection options) would be economic, compared to an approach focused on individual connections and incremental upgrades
- **Strengthening our scenarios and assessment framework** – assisting us to refine the generation pipeline, scenarios and long list of components by supplying any updated information relevant to the questions outlined at the end of this document.

3 Relevant generation projects

The generation projects that are considered in the system analysis are based on the published Transpower Connection Pipeline[8], and have been cross-checked against other available information such as the Generation Stack Report[9] developed for the Te Kanapu initiative[10] and developer websites.

Table 1 lists the relevant projects, their maximum capacity and generation type. The exact location and connection voltage for individual projects is subject to change during the connection investigation process.

We are specifically consulting on this generation pipeline to confirm we have captured the right set of projects and to refine the assumptions we use in our investigation, including:

- **Project awareness** – have we captured a complete picture of what potential generation projects are under consideration
- **Project readiness and commitment** – what further information you can share about the maturity of your project (for example, key milestones achieved or remaining) to help us understand which projects are most likely to progress
- **Connection timing** – your best estimate of when your project may be ready to connect (recognising this will be indicative and may change as development progresses)
- **Connection approach** – how you would expect to connect under different network development approaches (for example, an individual connection pathway versus a coordinated regional upgrade), and whether a shared transmission option for connection would influence the choices you are able to make about timing, scale, or connection arrangement.

Table 1: Regional generation projects

Generator Reference	Project Name	Location (substation or line)	Capacity (MW)	Connection Voltage (kV)	Generation Type	Transpower Stage
G1	Dannevirke Solar Farm (Bright Fern)	Dannevirke	25	11	Solar	Delivery
G2	Masterton Solar and BESS (NZCE)[11]	Masterton	91	33	Solar + BESS	Delivery
G3	Greytown Solar Farm (Far North Solar)[12]	Greytown	158	110	Solar	Delivery

8 Transpower: What's the latest with grid connections?
9 Beca and Concept Consulting: 2025 Generation Stack Report
10 Transpower: Te Kanapu
11 Masterton Solar & Energy Storage Project — NZCE
12 Far North Solar Farm - New Zealand's First Solar Farm

Generator Reference	Project Name	Location (substation or line)	Capacity (MW)	Connection Voltage (kV)	Generation Type	Transpower Stage
G4	Masterton/ Carterton Solar Farm (Harmony)[13]	Masterton	100	110	Solar + BESS	Delivery
G5	Mt Munro Wind Farm (Meridian)[14]	MGM–MST	90	110	Wind	Investigation
G6	Solar Farm	Waipawa	100	110	Solar + BESS	Investigation
G7	Solar Farm	Bunnythorpe	300	220	Solar + BESS	Investigation
G8	Waipawa/Ongaonga Solar Farm (Helios)[15]	Waipawa	100	110	Solar + BESS	Delivery
G9	Solar Farm	Dannevirke	72	110	Solar + BESS	Investigation
G10	Foxton Solar Farm (Genesis)[16]	BPE–HAY	180	220	Solar	Investigation
G11	Wind Farm	Mangamaire	50	33	Wind	Investigation
G12	Solar Farm	Waipawa	43	33	Solar	Investigation
G13	Solar Farm	Bunnythorpe	525	220	Solar + BESS	Investigation
G14	Te Rere Hau Wind Farm Repowering (Meridian)[17]	BPE–LTN	170	220	Wind	Investigation
G15	Wind Farm	BPE–TNG or BPE–WRK	300	220	Wind	Investigation
G16	Wind Farm	Linton	230	220	Wind	Application
G17	Solar Farm	Mangamaire	40	33	Solar	Investigation
G18	Castle Hill Wind Farm (Genesis)	BPE–WDV or MGM–MST	300	110 or 220	Wind	Application
G19	Ongaonga Solar Farm (Centralines)[18]	Waipawa	26	33	Solar	N/A (embedded)
-	Otupae Wind Farm	-	400	220	Wind	-
-	Ratahiwi Wind Farm	-	90	110	Wind	-
-	Manawatū Wind Farm	-	200	220	Wind	-
-	Tītoki Wind Farm	-	270	110	Wind	-
-	Mākākahi Wind Farm	-	80	110	Wind	-

13 Carterton Solar Farm - Harmony Energy
14 Mt Munro Wind Farm | Meridian Energy
15 Helios | Helios Energy - Ongaonga Project
16 Foxton Solar Farm | Genesis NZ
17 Te Rere Hau Wind Farm | Meridian Energy
18 Ongaonga Solar Farm Project

Existing wind farms in Tararua and Te Āpiti may be repowered during the 2030s, with an increase in generation capacity.

4 Options to address the need to invest

We have developed a long list of potential investment options identified as possible contributors to unlocking the region's renewable generation potential.

In summary, the long list considers three broad categories:

- Transmission options – upgrading and enhancing existing assets
- Transmission options – building new assets
- Non-transmission solutions (e.g., flexible demand, energy storage).

Attachment 1 contains the detailed long list of investment options and discusses how we develop a refined short list of development plans.

5 Demand and generation scenarios

To test the boundaries of where constraints may emerge, we will use demand and generation scenarios. Attachment 2 outlines the scenarios and assumptions we propose to use for this MCP investigation, including our intention to use the benefit-based charges (BBC) Assumptions Book v3.0[19] Electricity Demand and Generation Scenario (EDGS) variations as the basis for our market scenarios. This is supplemented with regional-specific demand details, given that the EDGS as published by Ministry of Business, Innovation and Employment (MBIE) are primarily at a national level.[20]

We welcome feedback on whether these proposed scenarios and assumptions are appropriate for this MCP investigation. The relevant generation projects presented in Table 1 are converted into model inputs with additional generic candidate projects as shown in Attachment 2. We will look to update our inputs based on feedback from this consultation, including specifically information on potential generation projects.

6 Generation modelling approach

For this investigation, we are using our modelling to understand the interaction between transmission and generation development. For each grid development plan, we will determine a

[19] Transpower: Assumptions Book

[20] MBIE: Electricity Demand and Generation Scenarios (EDGS)

generation expansion plan which satisfies demand for each selected EDGS variation. The expansion plan is influenced by the assumptions around generation capital costs, ongoing costs, fuel and emissions costs. Critically, we are seeking information on generation development in the region to help inform the assumptions we make.

This MCP investigation aims to evaluate the 'unlocking effect' of transmission investments on generation projects—specifically, to determine how transmission constraints may restrict connection and dispatch, and the potential impact of increased regional transmission capacity. To examine the interdependencies between grid and generation investments, we will analyse prospective generation expansion plans in conjunction with proposed grid development plans, comparing changes in dispatch, curtailment and emissions outcomes as well as the corresponding electricity market benefits relative to the costs associated with each plan.

To ensure credible model outcomes regarding the share of generation in the Tararua and Wairarapa region compared to the rest of the country, and to get to some high/low sensitivities, the analysis will be highly model-driven. However, we may apply some manual interventions to the optimised model outcome based on consultation feedback. This should allow us to analyse the tipping points for unlocking generation investments, in other words, what generation scenario would need to materialise to make the various transmission investments economic.

7 Input assumptions for option evaluation: what needs to be true for ambitious options

We aim to take a broad approach to evaluating what the best grid investment options are to unlock the renewable generation potential of this region. As this is an enabling investment, there may be different optimal pathways depending on how much generation is likely to commit, and this will form an important part of future consultations and determining a path forward. Our assessment will identify which development plans are economic and will test what input assumptions would need to hold for each development plan (including the more ambitious development plans) to be economic, and what renewable generation they could unlock if those conditions eventuate.

One tool we will use to inform this assessment is the Investment Test (a costs and benefits analysis). We will apply it to a refined short list of development plans and to help identify the circumstances in which they could deliver greater net benefit.

The Capex IM specifies the types of electricity market costs and benefits that can be included. For an enabling renewables project like this MCP investigation, benefits commonly arise where improved transmission capability reduces the costs associated with constraints—such as reducing involuntary curtailment/deficit costs and reducing emissions costs through changes in dispatch and the least-cost supply mix. In addition, given the nature of enabling investment, we will also consider relevant unquantified benefits and other net economic benefits where they are material to the decision. We will describe these additional benefits, and how we propose to treat them, as part of our short list consultation.

Applying the Investment Test requires a set of assumptions and parameters. Some (such as demand and generation scenarios) are consulted on Attachment 2. In this consultation we are also seeking feedback on key Investment Test assumptions (including the discount rate and our approach to

value of unserved energy). Attachment 3 provides more detail on the Investment Test parameters we intend to use in this investigation:

- **Value of unserved energy** – the value of expected unserved energy is the assumed value to consumers of losing electricity supply because of an unplanned outage. As we are not planning to assess reliability benefits, we will not apply a value of expected unserved energy in our benefit analysis. However, we will consider deficit costs, loss costs and costs of curtailed renewable generation based on the market modelling.
- **Discount rate** – the rate used to discount future costs and benefits to present values. We normally adopt a default 5% real, pre-tax discount rate. As this project is aiming to unlock renewable generation and reflects the longer-term benefits of electrification, we are seeking input on whether a 3% discount rate would be more appropriate for an investment of this nature, with sensitivities of 1%, 5% and 7%.

The Capex IM provides us with the opportunity to stage our investment by seeking approval for the project in stages. This mechanism is intended to provide us with some ability to manage uncertainties in the need for the project. At this stage of the investigation, we are not able to determine if any staging will be proposed, but we remain open to the ability to do this if it proves to be beneficial.

8 Consultation process and scope

Consultation information provided

This consultation information provided comprises:

- This long list consultation overview document
- A series of attachments providing more detailed information on key elements of the process:
  - Attachment 1 – Need and Long List of Options
  - Attachment 2 – Demand and Generation Scenarios
  - Attachment 3 – Investment Test Parameters

The attachments contain both information and specific questions on which we are seeking feedback. The questions are also summarised in the final section of this document.

Confidential consultation process

We invite written feedback for this consultation from 5 May to 15 June 2026. Please send your submissions or queries to grid.investments@transpower.co.nz. We will acknowledge submissions by return email.

We are using a confidential approach to this consultation, which we hope will encourage all generation investors to participate. The generation investment market in New Zealand is very competitive and historically, participants have been reluctant to share their plans and thoughts with Transpower, for fear that information would reach their competitors. Unlike our normal

consultations, where submissions are considered public unless confidentiality is requested, replies to this consultation will be considered confidential unless specifically noted as publishable. However, we will need to confidentially share all submissions received with the Commerce Commission, which will in turn form the basis for Transpower's future major capex proposals for grid investment. Transpower is subject to the Official Information Act.

Submitters may comment on any relevant aspect of our topic. We have asked some specific questions below and would welcome submissions on those questions, but all relevant comments are welcome.

9 Next steps

This long list consultation is the first significant step in our regulated process to propose major investment on the transmission network. The next steps include:

- considering the feedback received in submissions and publishing a summary of submissions
- developing a short list of development plans, taking account of the information received in response to this consultation
- evaluating the short list of development plans, and engaging with a wide range of stakeholders on what might be the best level of transmission investment
- consulting on our application of the Investment Test, including the use of unquantified benefits and other net economic benefits
- submitting a proposal to the Commerce Commission.

10 Specific feedback we are seeking

We have included questions you may wish to consider and respond to in your submission. These questions are intended to guide your response; however, you are not obliged to answer all or any of the questions and are welcome to raise other issues that are relevant to you. The questions are spread across the three attachment documents and are included below.

Attachment 1 explores the region's renewable generation potential and sets out the investment need, identified by considering the transmission constraints that are expected to arise. It asks the questions:

Q1.	Do you agree with our assessment of the investment need?
Q2.	Are there any other issues or considerations relating to the investment need that we should incorporate into the investigation?

Building on this, Attachment 1 also provides more detail about the long list of options from which we will develop a refined short list of development plans to meet the need:

Q3.	Are there any other options we should add to our long list?
Q4.	If new or upgraded shared transmission capacity were developed, which connection areas or locations would be most beneficial to you and why (e.g., proximity to your projects, lower curtailment risk, fewer consenting barriers)?
Q5.	Are there any other criteria we should consider when evaluating our long list of options and reducing it to a short list?
Q6.	Are there any constraints or limitations we might not be aware of regarding our options?

Attachment 2 describes the demand and generation scenarios we propose using in our investigation and asks the questions:

Q7.	Are you aware of any new industrial, commercial, residential or other developments that will significantly impact demand that are not mentioned above? If so, what are they?
Q8.	Do you consider our demand assumptions appropriate for this investigation? Please provide us with any information about developments in the region that could help inform our forecasts.
Q9.	Do you agree with our proposal to use our BBC Assumptions Book v3.0 variations as the basis for our market scenarios for this investigation?
Q10.	Are you developing a generation project in the Tararua and Wairarapa area? At what stage are you in developing it (e.g. investigating, consenting, in design, financial investment decision approved, in construction)? If there was sufficient transmission capacity, when would you expect your project to be built?
Q11.	Are you aware of any additional generation projects in or near the Tararua and Wairarapa region that could materially affect our modelling for this investigation?
Q12.	Do you consider our generation assumptions (including assumed capacities, costs and capacity factors) appropriate for this investigation?
Q13.	What aspects of the regional transmission development plan would be most important for your generation projects (e.g., timing certainty, connection configuration)?

Attachment 3 describes the Investment Test parameters we propose using in our application of the Investment Test. The Investment Test is a cost-benefit analysis applied to a short list of options and is used to identify which option maximises net benefit to electricity consumers. In Attachment 3 we ask the questions:

Q14. Do you consider the proposed calculation period to 2055 appropriate for this investigation? Or do you think we should use a calculation period longer than 2055 to assess the economics of the investment options? If yes, what end year (or number of years) would you suggest, and why?

Q15. For this investigation, we propose using a 3% discount rate to better reflect the long-term benefits of enabling renewable generation and supporting more affordable electricity prices. Do you consider a discount rate of 3% (with sensitivities of 1%, 5% and 7%) to be appropriate for this investment?

Q16. Are there any unquantified benefits or other net economic benefits that should be considered in this investigation?

Q17. What assumptions should we make about the counterfactual for your project (i.e., without a coordinated Tararua grid upgrade)—including how you would connect, and whether a coordinated upgrade would change your project's timing, cost, or scale?

Q18. Are there any other market costs or benefits which should be reflected in our Investment Test analysis?

TRANSPOWER