

**Before the Kāpiti Coast District Plan – Proposed Plan Change 2:
Intensification**

Under the Resource Management Act 1991 (the Act)

In the matter of the Kāpiti Coast District Proposed Plan Change 2

Between **Kāpiti Coast District Council**
Local authority

And **Transpower New Zealand Limited**
Submitter 076

**Statement of Evidence in Chief of Trudi Lee Burney for
Transpower New Zealand Limited
Dated 10 March 2023**

Introduction

1. My full name is Trudi Lee Burney. I am a Senior Environmental Planner at Transpower. My relevant experience, qualifications, and commitment to comply with the code of conduct for expert witnesses are included in **Appendix A**.
2. I confirm that I am authorised to give this evidence on behalf of Transpower.

Scope of Evidence

3. My evidence will address the following:
 - a) Transpower and the National Grid;
 - b) New Zealand's Paris Commitment and Decarbonisation; and
 - c) Transpower's assets within the Kāpiti Coast District; and
 - d) Transpower national approach to the Intensification Planning Instrument

Transpower and the National Grid

4. Transpower is a State-Owned Enterprise that plans, builds, maintains, owns and operates New Zealand's high voltage electricity transmission network – the National Grid. The National Grid links generators to distribution companies and major industrial users. It extends from Kaikohe in the North Island down to Tiwai in the South Island and carries electricity throughout New Zealand.
5. New Zealand has become increasingly dependent on electricity. It is an intrinsic part of living and working in the 21st century. Electricity now accounts for about 25% of all energy used in New Zealand. Each year, \$5 billion worth of electricity is traded on the wholesale electricity market. Transpower, whose main role is to ensure the delivery of a reliable and

secure supply of electricity to New Zealand, has a fundamental role in the industry and in New Zealand's economy.

6. Transpower is not a generator of electricity and has no retail sales of electricity. It can be considered to be a 'freight company' for electricity, in that it carries bulk electrical energy from where it is generated to where it is used, be that by large industrial 'direct connect' customers or local electricity distribution companies – which for the Kāpiti Coast district is within.
7. Transpower also manages New Zealand's power system in real time. In its role as System Operator, Transpower operates the electricity market to ensure electricity transmitted through the National Grid is delivered whenever and wherever it is needed, 24 hours a day, seven days a week.
8. Transpower's main role is to ensure the reliable supply of electricity to the country. Transpower plays a significant part in New Zealand's economy, with all major industries, cities and communities being reliant on a secure and reliable supply of electricity.

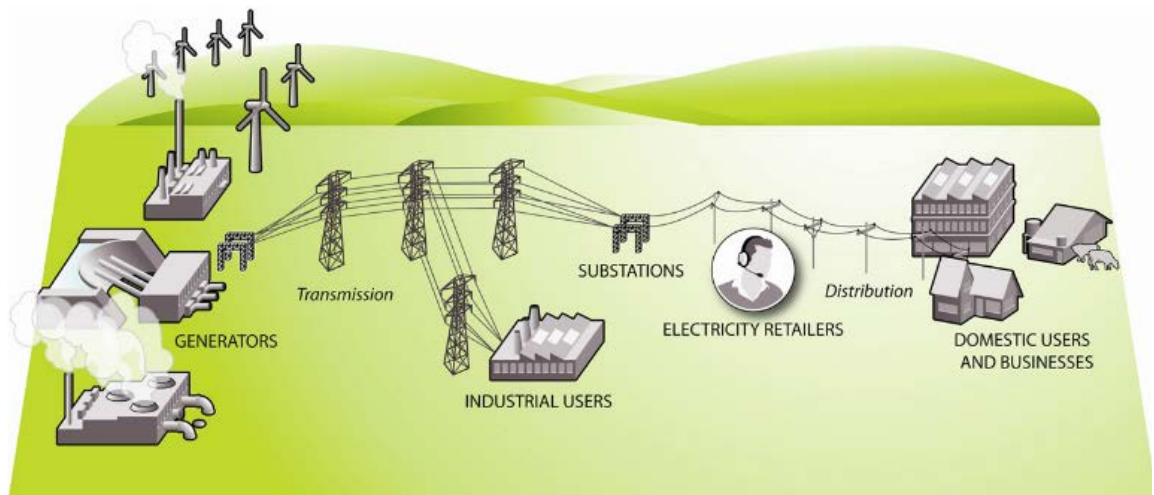


Figure 1. Electricity Industry in New Zealand. Source MBIE

9. As a State-Owned Enterprise, Transpower's principal objective is to operate as a successful business. It must operate within certain legislative constraints and report regularly to its shareholding Ministers. Transpower is required to deliver and operate a National Grid that meets the needs of users now and into the future.

10. One of Transpower's key objectives therefore is to maintain and develop the National Grid, which contributes to New Zealand's economic and social aspirations. This objective is reflected in the single objective in the NPSET.
11. Prudent investment in the National Grid (including for maintenance), long term transmission planning strategies, and developing technologies are crucial to ensure the most can be made from existing infrastructure. This will, in turn, help to limit the cost and environmental footprint of the National Grid for future generations. This is more critical than ever in the context of the Climate Change Response (Zero Carbon) Amendment Act 2019, which I expand on later in this evidence.

The National Grid

12. The National Grid comprises some 11,000 km of transmission lines and over 170 substations across the country. This is supported by a telecommunications network of some 300 telecommunication sites, which help link together and communicate with the components that make up the National Grid.
13. The National Grid comprises a high voltage backbone which runs the length of the country and links major generation (such as the geothermal power stations near Taupō) to major loads in the main cities. The bulk of the National Grid backbone was built around 60 years ago and comprises most of the 220 kilovolt (kV) lines throughout New Zealand, along with the High Voltage Direct Current (HVDC) link between the North and South Islands.
14. A map showing the National Grid substation and transmission lines within the Kāpiti Coast District is included in **Appendix B** to this evidence.
15. The National Grid is an interlinked network. Electricity flows along transmission lines via conductors supported by towers (pylons) or poles and can vary in any instant, depending on actual generation at power stations and the demand for electricity across New Zealand.

25. The National Grid provides connectivity between all sources of generation and consumers. Without the National Grid, consumers across New Zealand would be dependent on locally generated electricity which would be more expensive and less reliable. As such, the National Grid plays an important role in the sustainable management of natural and physical resources.

Transmission Tomorrow

16. Transpower's 2018 publication "Transmission Tomorrow" sets out Transpower's strategy for the future development of the National Grid for the next 30 years and beyond. Transmission Tomorrow documents Transpower's view that there is an enduring role for the National Grid. Transpower's lines and substations will be required for many years into the future to power the economy while enabling New Zealand's continued reliance on renewable forms of electricity generation, including from the power stations along the Waikato River, and the new geothermal stations commissioned near Taupō.

New Zealand's Paris Commitment and Decarbonisation

17. In early 2018 Transpower published its white paper "Te Mauri Hiko – Energy Futures" (Te Mauri Hiko). This project closely examined a range of electricity supply, demand and future technology scenarios and began exploring what will be required for New Zealand to maximise the potential of the energy opportunity it is facing, including meeting its Paris Climate Accord commitments. Greenhouse gas emission reduction targets were agreed by New Zealand at the 2016 Paris Climate Accord and have been translated into climate policy via the Climate Change Response (Zero Carbon) Amendment Act 2019.
18. An updated strategy underlining the need to decarbonise New Zealand's economy, Transmission Tomorrow, was published in 2018. Transmission Tomorrow sets out how Transpower will go about planning and the developing the transmission system as demand for electricity increases as the transport and process heat sectors are electrified, and as new renewable generation is added to the system.

19. Since then, in 2020, Transpower released a further document “Whakamana i Te Mauri Hiko – Empowering our Energy Future” which sets out a blueprint for how New Zealand might get to a zero-carbon future. It is consistent with the findings of both the Interim Climate Change Committee and the Productivity Commission that the greatest opportunities for emissions reductions outside of agriculture lie in the energy sector; specifically around increasing the proportion of renewable electricity in the system and the electrification of emissions intensive transport and process heat sectors. In February 2021, Transpower published its “Electrification Roadmap”. This work focuses on policy options to accelerate emissions reductions in the transport and process heat sectors.
20. While a resilient National Grid remains at the heart of New Zealand’s energy future, climate change has become a central issue for governments globally and hence Transpower as a responsible owner and operator of the National Grid on behalf of New Zealanders. Technology continues to advance rapidly. Electricity is increasingly positioned as an energy source for whole economies, rather than just homes and some business processes.
21. As the economy electrifies in pursuit of the most cost efficient and renewable sources, the Whakamana i Te Mauri Hiko base case predicts that electricity demand is likely to increase around 55% by 2050. Since 2020, this demand is now expected to be 70% by 2050. Whakamana i Te Mauri Hiko suggests that meeting this projected demand will require significant and frequent investment in New Zealand’s electricity generation portfolio over the coming 30 years, including new sources of resilient and reliable grid connected renewable generation. In addition, new connections and capacity increases will be required across the transmission system to support demand growth driven by the electrification of transport and process heat. Simply put, New Zealand’s electricity transmission system is the infrastructure on which our zero-carbon future will be built. The pressing need for new electricity infrastructure exists now, and will continue to ramp up over the coming decades. If infrastructure delivery does not keep pace with the rapidly growing demand, New Zealand will need to continue to rely on fossil fuels

to generate electricity. And, at worst, security of supply will be compromised.

22. It is noted that developments in solar and battery technology, from grid scale down to residential installations, along with the electrification of process heat, will form much of the future tomorrow's low-carbon energy system. Transpower produced in-depth reports on all three topics as part of the programme of work leading to the 2020 publication of Whakamana i Te Mauri Hiko.
23. The transformation to a predominantly electrified economy is not theoretical - it is already happening. Transpower has experienced a surge in connection requests, including significant levels of national and international inquiry from potential generation developers interested in investing in New Zealand. While this surge was first identified in Whakamana i Te Mauri Hiko, there has been an unprecedented increase in connection enquiries – from around five per year in 2016 to more than 124 enquiries for the year ending June 2022.
24. This work supports Transpower's view that there will be an enduring role for the National Grid in the future, and the need to build new National Grid lines and substations to connect new, renewable generation sources to the electricity network.
25. In terms of a brief summary, the National Grid:
 - a) Transports electricity across the country (connecting generation to consumers);
 - b) Supports New Zealand's national and regional economic growth;
 - c) Plays an essential role in maintaining reliability and security of supply of energy;
 - d) Provides a basis for investment decisions to be made by both suppliers and consumers of electricity;
 - e) Enables competition among suppliers and retailers of electricity, thereby providing the basis for competitively priced electricity;

- f) Assists the development of new electricity generation technologies, including renewable energy, by providing access to markets;
- g) Enables the electrification of transport and process heat, without which there is no way in which our Paris Agreement and net-zero carbon economy commitments can be met; and
- h) Is predicted to play a key role in the decarbonisation of the economy.

Transpower's assets within Kāpiti Coast

- 26. The wider Wellington region is the major load centre of the southern North Island, comprising both residential loads and a major city Central Business District (CBD). The Kāpiti Coast District includes with towns and smaller rural localities. These are shown on the Map in Appendix B.
- 27. There is one (designated) substation within the Kāpiti Coast District being the Paraparaumu Substation.
- 28. The following National Grid assets are within or traverse the Kāpiti Coast District;
 - Bunnythorpe – Wilton A (BPE-WIL-A) 220 kV overhead transmission line on towers;
 - Bunnythorpe – Haywards A (BPE-HAY-A) 220 kV overhead transmission line on towers;
 - Bunnythorpe – Haywards B (BPE-HAY-B) 220 kV overhead transmission line on towers;
 - Paraparaumu Tee A (PRM-TEE-A) on pi poles; and
 - Paraparaumu Tee B (PRM-TEE-B) on pi poles
- 29. In terms of Transpower's projects in the Kāpiti Coast District, there are no major current upgrade projects occurring within the district. Rather Transpower is undertaking 'business as usual' maintenance works on its assets (such as support structure foundation strengthening, support structure replacement, vegetation trimming and clearance, and access track maintenance).

Transpower and the Intensification Planning Instrument

30. The Kāpiti Coast District Council PC2 is one of 13 Intensification Planning Instruments (IPS's) Transpower has submitted on. The general tenure of the submissions has been to support the identification and provision of the National Grid as a qualifying matter, and to seek clear policy references to qualifying matters. The concept of Qualifying matters is identified in the NPS-UD subpart 6 - section 3.33, and s77I and s77O of the Resource Management (Enabling Housing Supply and other Matters) Amendment Act 2021. While it is generally accepted across all the IPI's the National Grid is a qualifying matter, there is variation on how such areas are defined. The policy approach to the MDRS has also varied across the various IPI's with some councils adopting a prescriptive approach in giving effect to the objectives and policies within clause 6 of Schedule 3A of the RRA, and other councils either amending the policies or including additional policies. In its submissions Transpower has sought to work within the context of the proposed provisions.

Conclusions

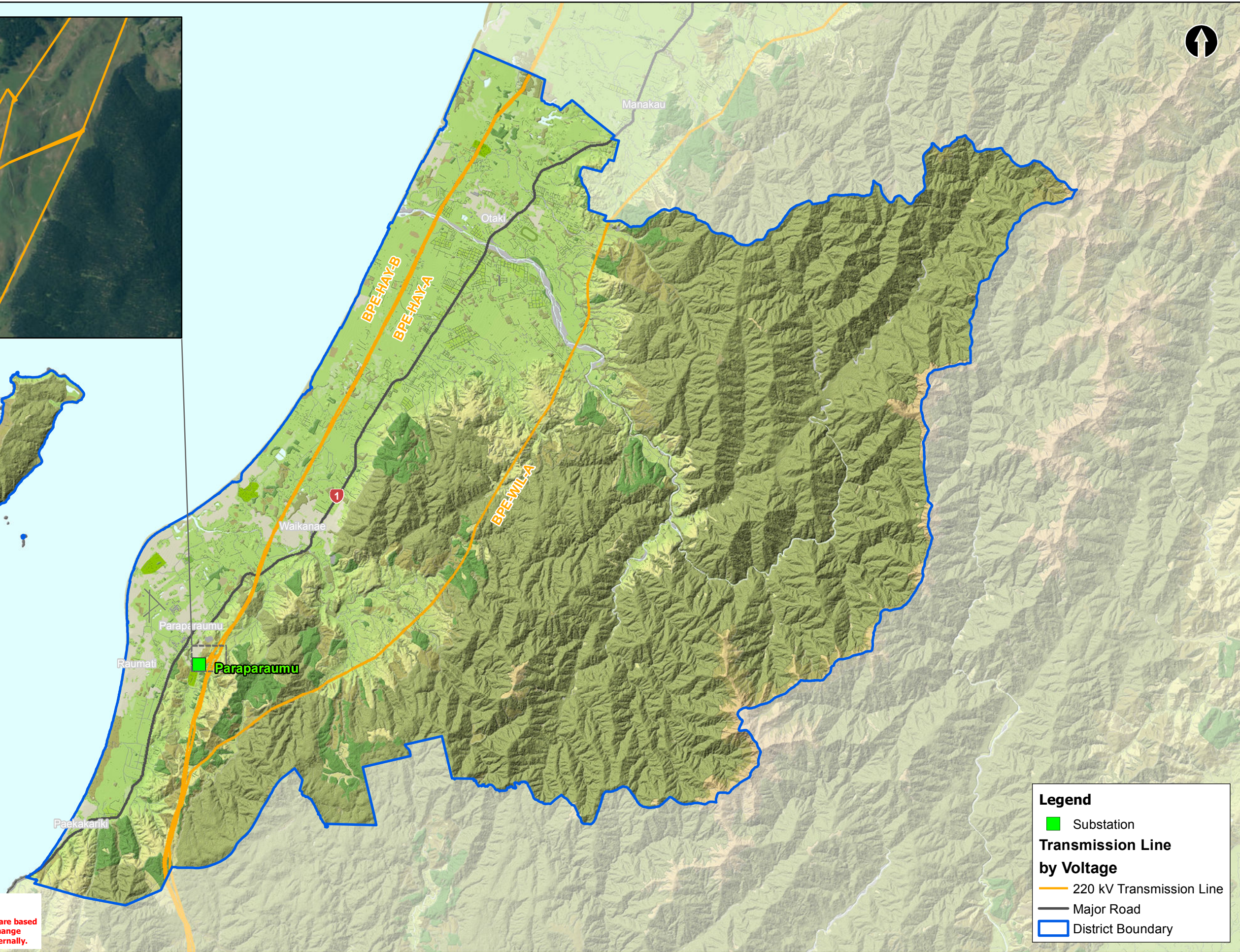
31. The National Grid is critical to the social and economic wellbeing of the Kāpiti Coast District and our nation generally. It will also play a critical role in New Zealand's carbon zero commitment and mitigating the effects of climate change. In addition to necessitating the upgrade of existing, and construction of new, National Grid assets, the ongoing protection of existing assets are required. As an infrastructure asset of national significance, the NPSET requires that the National Grid be recognised and provided for in the district plan. Specific to PC2, this is through the ongoing recognition of the National Grid as a qualifying matter.

10 March 2023

Appendix A – Relevant Experience and Qualifications

1. I am a Senior Environmental Planner at Transpower. I work in the Environmental Policy and Planning Group and my Group's responsibilities include:
 - a) Strategic planning. This planning is achieved through the development and implementation of Transpower's approach to the NPSET at a national level and local level.
 - b) Delivering Transpower's policy approach on environmental regulations, legislation and council planning documents.
 - c) Ensuring the on-going and future protection of Transpower's network.
 - d) Ensuring that all environmental approvals are obtained for Transpower's physical works.
 - e) Managing third party interactions to ensure that Transpower's interests are appropriately maintained.
2. I have been employed by Transpower since September 2021, as a Senior Environmental Planner. During this time I have had experience working in various roles; including. Internal and external communications
3. I have a Bachelor of Science (from Canterbury) and a Master of Environmental Science from Lincoln University. I have previously worked for the Manukau City Council and the Christchurch City Council before working for around 15 years for a local consultation company in Christchurch. I have over 22 years' experience working as an environmental planner and I am a full member of the New Zealand Planning Institute.
4. I confirm I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Consolidated Practice Note 2023. As I am employed by Transpower, I acknowledge I am not independent; however, I have sought to comply with the Code of Conduct. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Appendix B – National Grid Assets within the Kāpiti Coast District



Legend

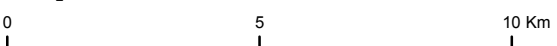
- Substation
- Transmission Line by Voltage**
- 220 kV Transmission Line
- Major Road
- District Boundary

External Disclaimer
 This document is produced for external release. Its conclusions are based on the information currently available to Transpower and may change as further information becomes available either internally or externally.

Transpower Assets (after MHO-PKK-A & B lines removal)
Kapiti Coast District Council



Projection: NZTM 2000 Scale: 1:150,000 Plan Size: A3L



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