BEFORE THE HEARINGS PANEL

APPOINTED BY OTAGO REGIONAL COUNCIL

UNDER THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Proposed Otago Regional Policy Statement 2021 (Non-freshwater parts)

STATEMEMT EVIDENCE OF NICOLA IRENE FORAN ON BEHALF OF MANAWA ENERGY LIMITED

DATED 23 November 2022

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Introduction

1. My full name is Nicola Irene Foran. I am employed by Manawa Energy Limited (**Manawa**) as their Environmental Policy Manager and am based at its head office in Tauranga. I have been employed by Manawa since 2013.

2. I hold the qualifications of Bachelor of Science (Earth Science) from the University of Waikato (2004) and a Post Graduate Diploma in Arts (Planning) from Massey University (2010). I am a full member of Te Kokiringa Taumata, the New Zealand Planning Institute and have over 18 years' experience in the field of environmental and resource management.

3. In my position at Manawa, I am responsible for, amongst other things, reviewing and contributing to resource management processes which may enhance or impact on Manawa's existing, consented or prospective renewable electricity generation assets and associated infrastructure. This includes providing input into central government reform programs, development of national direction, and regional and district planning activities, including Environment Court appeal processes.

Scope of evidence

4. My evidence will address:

   (a) Relevant Manawa history;

   (b) Background context for submission;

   (c) Manawa's assets and interests in Otago;

   (d) Overview of submission and implications of proposed RPS; and

   (e) Use of terms (energy vs electricity).

Relevant Manawa history

5. Manawa is a publicly listed and predominantly a New Zealand owned company. It grew from the Tauranga Electric Power Board (established in 1924) and into Trustpower Limited that was formed as part of the deregulation of the electricity supply industry in the mid-1990's.

6. Manawa was recently established after the mass market retail business of Trustpower (including the Trustpower brand) was sold to another company. The sale excluded the generation arm of the company, which was rebranded. Manawa

retained ownership of the electricity generation assets and began trading from 1 May 2022. It now employs over 200 people throughout New Zealand.

7. The name Manawa, meaning heart, was gifted to us by Ngāti Hangarau hapū, mana whenua of the area where our Kaimai scheme is located, near Tauranga. The name acknowledges our shared connection to the Omanawa River – a place of significance to Ngāti Hangarau and the origin of our business from its beginnings when electricity generation was established on the Omanawa River in the early 1900s.

8. Manawa owns 487MW of hydroelectricity generation assets throughout New Zealand which consists of 38 hydro-electric power stations across 25 individual schemes[1]. The installed capacity of Manawa's schemes varies from 0.43 to 86MW. Cumulatively our stations represent approximately 8% of New Zealand's installed hydro-electricity generation capacity. This is enough electricity to supply approximately 274,000 typical New Zealand households.

9. Manawa's existing hydro-electric power schemes (**HEPS**) are lifeline utilities under the Resource Management Act 1991 (**RMA**) and Civil Defence Emergency Management Act 2002. Electricity generated by Manawa's HEPS is conveyed to consumers via the national grid and local distribution networks.

10. While many of Manawa's larger schemes are connected to the national grid, the majority are embedded into the local electricity supply network and form a vital element in sustainable electricity supply within New Zealand. Manawa is connected to ten different companies' networks. The location and scale of Manawa's schemes, along with a commitment to local supply (to ensure that electricity is consumed as close as possible to where it is generated) is a key and somewhat unique feature of Manawa's generation philosophy and portfolio.

11. The provision of existing and new renewable electricity generation infrastructure is identified as a matter of national significance under the RMA (as identified in the National Policy Statement for Renewable Electricity Generation (**NPS-REG**)). Despite this recognition, the development of plan provisions at regional and local scales does not always recognise or provide for existing or future renewable electricity generation.

[1] Which includes 20 schemes wholly owned by Manawa, and 5 schemes under the King Country Energy portfolio, of which Manawa is a 75% shareholder, and is responsible for the operation and maintenance of these schemes.

12. Manawa's electricity generation operation and maintenance activities operate within the constraints of over 430 resource consents. Over 3,520 conditions are associated with these consents, with more than 470 actively managed for compliance purposes.

Background context for submission

13. The Government has committed to New Zealand transitioning to 100% renewable electricity generation by 2030 and is developing policy packages which aim to accelerate the deployment of renewable electricity generation and reduce carbon emissions.

14. Alongside that sits New Zealand's commitment to both the United Nations Framework Convention on Climate Change (entered in 1992) and the Paris Climate Change Agreement (adopted in 2015) – and the commitment to reduce greenhouse gas emissions to 50% below the 2005 levels by 2030, and a domestic 'net zero' commitment of all greenhouse gas emissions (except methane) by 2050.

15. The renewable electricity generation industry is ready, willing, and able to play a significant role in meeting these commitments.

16. For these commitments to be achieved, rapid electrification of the economy will be required, and this will require a significant increase in the installed capacity of emissions free renewable electricity generation.

17. Approximately 1,250 GWh of new renewable generation will be required on average each year until 2050[2]. To put that into context, it is the equivalent to commissioning every year until 2050 – a wind farm the size of Mercury's Turitea Wind Farm near Palmerston North (which once completed will be New Zealand's largest wind farm with an installed capacity of 222 MW and an annual output of 840 GWh, and Meridian's West Wind which has an installed capacity of 142 MW and an annual output of 550 GWh.

18. By comparison, an average of 380 GWh of new renewable generation was commissioned annually in the 30 years to 2020. Furthermore, the future development rate will need to be even higher if existing renewable electricity stations' operating capabilities are reduced when current resource consents expire.

[2] Renewable generation development implications of decarbonisation through electrification; Concept Consulting, 2022

19. This is no small task, and in that, every region in New Zealand, including Otago, has a role to play in ensuring that the climate change commitment, made by the Government on belief of all New Zealanders, is met.

20. Given that climate change is one of the most significant issues facing New Zealand, there is a need to ensure a coordinated policy response to these issues and that includes all regions making provision for this to occur do so in a way that contributes to the national outcomes.

21. This requires the regional policy framework to align with central government's wider environmental aspirations, particularly that of increasing the share of renewable electricity generation (to 100%), phasing out of thermal generation, decarbonising / electrification of the economy and, of course, responding and adapting to climate change. These wider national goals and aspirations require investment certainty for electricity generators, and other industry participants, and therefore the regional policy framework should be conscious of the substantial commitments that this type of investment requires.

22. It is against that background that Manawa is seeking a stronger, more supportive, and enabling regulatory framework for renewable electricity generation, including particularly the protection of existing renewable electricity generation activities.

Manawa's assets and interests Otago

23. In the Otago region, Manawa owns and operates the Waipori HEPS, the Deep Stream HEPS and the Paerau/Patearoa HEPS. Location maps are provided in Appendices **A**, **B** and **C** to this evidence.

Waipori HEPS

24. The Waipori HEPS, Manawa's largest scheme at 86MW, begins near the headwaters of the Waipori River, high in the Lammerlaw Range. A web of water races, open channels, diversion tunnels and pipelines feed the scheme. The scheme consists of a large hydroelectric storage lake – Lake Mahinerangi, which feeds four power stations located on the Waipori River. It has a total average annual output of 192GWh, sufficient to supply electricity to approximately 24,000 typical New Zealand households.

25. The formation of Lake Mahinerangi for hydro-electric power generation in 1907 coincided with the end to gold mining in the Waipori area. A number of historic water or mining races, constructed to divert water for sluicing and sifting purposes as part

of the gold mining process in the area, were incorporated into the scheme to divert additional water into Lake Mahinerangi for electricity generation.

26. The Waipori scheme is particularly important for regional security of supply as it is able to supply electricity into both the National Grid and the local distribution network.

Deep Stream HEPS

27. The Deep Stream HEPS was commissioned in 2008, and diverts water from Deep Stream, via a canal to a water storage reservoir, and then allows the water to be released through canals, and passes through two power stations, generating a total of 6MW. This water then flows into Lake Mahinerangi via North West Creek for further generation through the Waipori Scheme. The Deep Stream HEPS supplies power equivalent to the annual demand of 3,100 typical New Zealand households and represents an emergency water supply for Dunedin City in the event of prolonged drought.

28. Manawa is currently in the process of seeking new resource consents associated with the impoundment, diversion, taking, discharge and use of water associated with four races; being the deemed permits associated with the Beaumont, Black Rock, Shepherds Creek and Crystals races.

Paerau/Patearoa HEPS

29. The Paerau/Patearoa HEPS is a joint hydroelectric/irrigation scheme located within the Maniototo sub-region of the Taieri Catchment, utilising water diverted from storage reservoirs along the Taieri River. It is made up of the Paerau Power Station which has an annual output of 56 GWh and the Patearoa Power Station which has an annual output of 8.3 GWh. Both stations were commissioned in 1984 and between them produce an annual average output of 62GWh, sufficient to supply electricity to approximately 7,750 typical New Zealand households.

30. To summarise, Manawa's hydro-electric generation assets in the Otago region produce around 268 GWh, enough electricity to supply approximately 35,000 typical New Zealand households, which is around 40% of the households in the Otago region.

Overview of submission and implications of proposed RPS

31. The geographical spread of its assets offers Manawa a valuable perspective on issues affecting the hydro-electricity sector, and Manawa has a particular interest in how the NPS-REG is given effect through regional planning processes.

32. The single objective of the NPS-REG is to recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation such that the level of electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation.

33. The NPS-REG applies to all renewable electricity generation activities, irrespective of size or scale. The overarching objective, Policy A subclauses a) and b) and Policy B subclauses a) and b) reinforce the national significance and speak to maintaining or increasing electricity generation capacity, and security of electricity supply. The NPS-REG notes that even a minor reduction in generation output of existing renewable electricity generation activities can cumulatively have significant adverse effects on renewable energy generation output.

34. In its submission, Manawa supported the intent of the proposed RPS to provide clarity in decision making but noted that the approach to priorities, hierarchy and integrated management appeared flawed and as currently formed was likely to result in confusion and misinterpretation.

35. Manawa considers the structure of the proposed RPS, as a whole, fails to clearly state priorities between competing resources and does not give effect to the NPS-REG. The approach in the proposed RPS is likely to result in confusion and misinterpretation as well as undermining the ability to operate and develop renewable electricity generation to support the health and wellbeing of the community.

36. Manawa also considers the proposed RPS chapter on Energy (EIT-EN) as currently drafted fails to provide clear direction on the approach to renewable electricity generation activities.

37. A key concern for Manawa, is the ongoing derogation of resource consents, and need to protect existing generation capacity. Manawa typically loses operational flexibility and generation output as a result of increasing restrictions placed on

HEPS[3]. Not only does this go against Policy B of the NPS:REG,[4] but this reduction in generation output means that the shortfall is currently made up using fossil fuels. Further, if cumulative loss in generation output continues, it will require new greenfield development to make up this shortfall.

Use of terms – 'energy' vs 'electricity'

38. One of Manawa's submission points focused on the correct use of terminology when the word 'energy' should be used, and when the word 'electricity' should be used.

39. Quite simply, electricity is a specific type of energy that is used to power your home and vehicle. Electricity is generated (produced) by several methods including harnessing light energy from the sun, chemical energy from natural materials, or mechanical energy from the movement of wind or water.

40. Renewable sources of energy that are currently used in New Zealand include solar, wind, water and geothermal[5] heat. The use of fossil fuels to generate electricity is another source of energy, although is non-renewable.

41. When referring to the source of fuel (ie wind, water) that is being used to generate electricity, that should be referred to as 'energy'. When we are referring to renewable generation, that should include the word 'electricity' rather than 'energy', as you cannot generate energy, but you can generate electricity.

42. While there are other applications of the term renewable energy[6] these are not matters of national significance, and nor do they have national direction.

[3] Such as restrictions on operational lake level ranges, and 'ramp rates' – how quickly a turbine can be started up or turned off.

[4] Decision-makers shall have particular regard to the following matters:

a) maintenance of the generation output of existing renewable electricity generation activities can require protection of the assets, operational capacity and continued availability of the renewable energy resource; and

b) even minor reductions in the generation output of existing renewable electricity generation activities can cumulatively have significant adverse effects on national, regional and local renewable electricity generation output; and

c) meeting or exceeding the New Zealand Government's national target for the generation of electricity from renewable resources will require the significant development of renewable electricity generation activities.

[5] I understand that there are no sources of geothermal energy in the Otago region, and therefore the use of this energy source for other activities (such as industrial process) is not relevant in the Otago region.

[6] Such as the use of geothermal energy to provide heat for various processes or using a water wheel to drive a flour mill, which do not involve the conversion of this energy into electrical energy.

43. I understand the reporting officer has stated that "*renewable energy can come in many forms, not just electricity*"[7]. This is incorrect, as electricity is derived from the use of energy, in this instance a renewable source of energy.

44. The reporting officer recommends to simply remove the word 'generation' from the objective.[8] This is incorrect, as it's not the source of energy that provides resilience to the region's communities and economy, it's the use of that energy, to generate electricity, which is required for a safe and resilient region.

45. The correct reference in Objective EIT-EN-O1 would be "Otago's communities and economy are supported by renewable electricity generation within the region that is safe, secure, and resilient."

Conclusion

46. The electricity generators[9] have worked collaboratively together over the last 9 months, to ensure a consistent and cohesive response to the pRPS, and we have also engaged with Transpower and Aurora Energy.

47. Manawa has provided further detail on how the proposed RPS can appropriately provide for renewable electricity generation, while fulfilling its other statutory requirements.

48. This includes suggested amendments to objectives and policies for renewable electricity generation within the EIT-EN chapter, which has been developed using the collective scope of submissions from the electricity generators, and which our independent planning witness, Ms Stephanie Styles will cover in her evidence.

Nicola Irene Foran

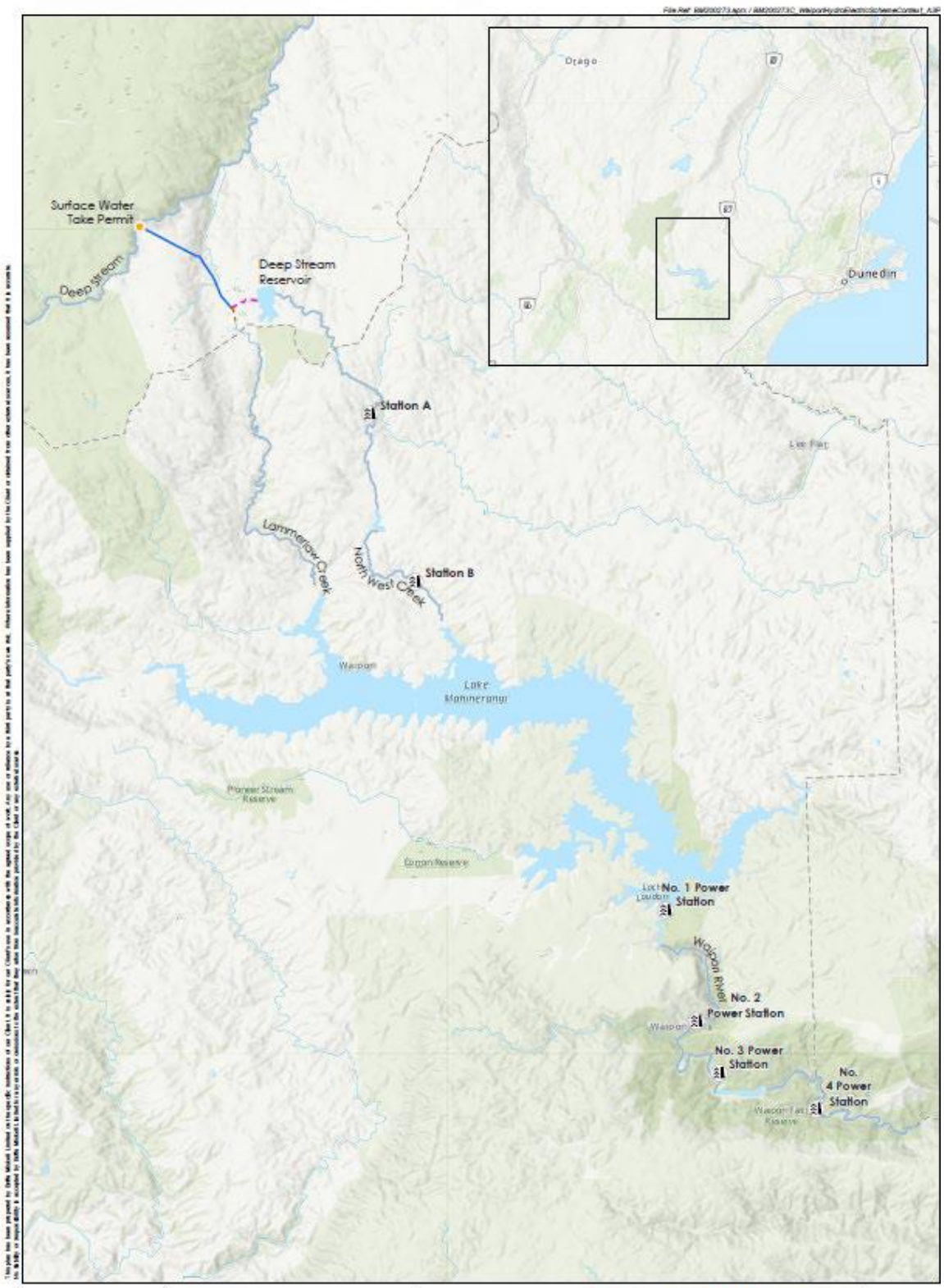
23 November 2022

[7] Brief of Evidence (Supplementary) of Marcus Hayden Langman - Energy Infrastructure and Transport, paragraph 46.

[8] Section 42A Hearing Report, Chapter 11: Energy, Infrastructure and Transport, 4 May 2022, paragraph 47.

[9] With Meridian Energy, Contact Energy, and to a lesser extent Mercury Energy.

APPENDIX A: MANAWA WAIPORI HYDRO-ELECTRIC POWER SCHEME LOCATION MAP



APPENDIX B: MANAWA WAIPORI HYDRO-ELECTRIC POWER SCHEME WATER RACE LOCATION MAP

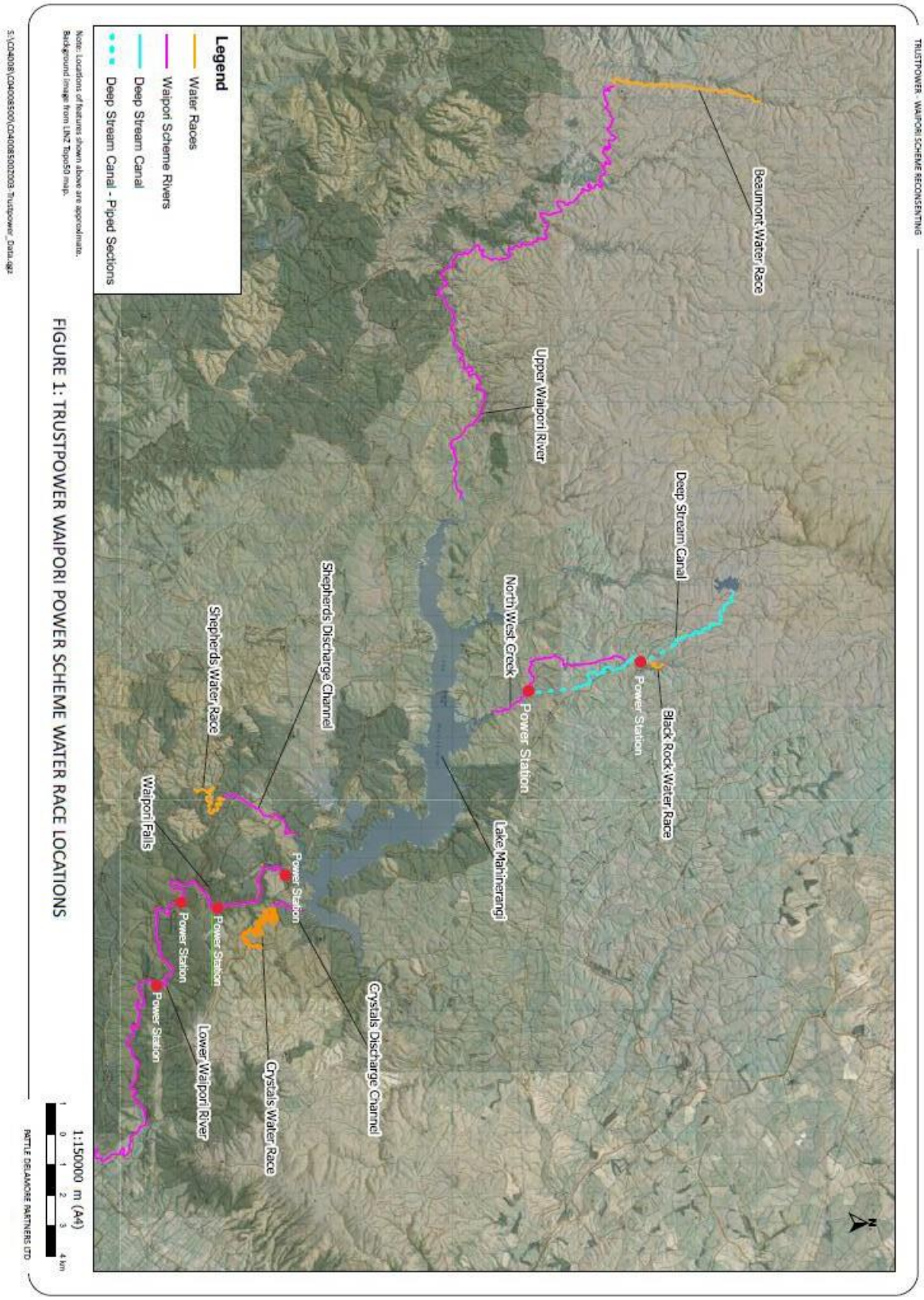


FIGURE 1: TRUSTPOWER WAIPORI POWER SCHEME WATER RACE LOCATIONS

APPENDIX C: MANAWA PAERAU / PATEAROA HYDRO-ELECTRIC POWER SCHEME LOCATION MAP