

IN THE ENVIRONMENT COURT ENV-2010-WLG-000159
WELLINGTON

IN THE MATTER

of the Resource Management
Act 1991

AND

IN THE MATTER

of an appeal under clause 14
of Schedule 1 of the Act

BETWEEN

GENESIS POWER LIMITED
ENV-2010-WLG-000159

AND

MERIDIAN ENERGY LTD
ENV-2010-WLG-000149

AND

MIGHTY RIVER POWER LTD
ENV-2010-WLG-000147

AND

TRUSTPOWER LTD
ENV 2010-WLG-000145
Appellants

AND

MANAWATU-WANGANUI
REGIONAL COUNCIL
Respondent

STATEMENT OF EVIDENCE OF JEREMY PAUL STEVENSON-WRIGHT

17 February 2012

1. INTRODUCTION

1.1 I am the Environmental Policy Manager for Genesis Power Limited (trading as "Genesis Energy"). I have held this position since February 2010.

1.2 I am responsible for ensuring that Genesis Energy engages effectively and strategically with environmental policy and planning processes at national, regional and district levels.

1.3 I hold a Bachelor of Laws and a Bachelor of Commerce and Administration from Victoria University of Wellington.

2. SCOPE OF EVIDENCE

2.1 In my evidence I will cover the following subjects:

- a. Background to Genesis Energy;
- b. Demand and supply of electricity;
- c. Overview of Genesis Energy's interests in the Manawatu-Whanganui Region, namely:
 - i. the Tongariro Power Scheme ("**TPS**") and
 - ii. the Castle Hill Wind Farm Project ("**CHWF**");
- d. Genesis Energy's position on the Policy 7-7; and
- e. Conclusion.

3. GENESIS ENERGY

3.1 Genesis Energy has the largest share of the New Zealand retail electricity market at 27%¹. We also generate electricity for sale to the wholesale market and to meet the needs of our retail customers.

3.2 We have a diverse portfolio of renewable and thermal electricity generation assets with a combined nominal generation capacity of approximately 2,140MW. Our generation assets are:

- the 1448MW Huntly Power Station in Waikato;
- the 138MW Waikaremoana Power Scheme in Hawke's Bay;
- the 9MW Hau Nui Wind Farm in South Wairarapa;
- the 185MW Tekapo Power Scheme in South Canterbury; and
- the 362MW Tongariro Power Scheme located within the Manawatu-Whanganui and Waikato Regions.

3.3 I describe the TPS in more detail below.

3.4 To ensure that we have adequate access to reliable electricity generation for our customers, we continue to pursue new generation development prospects across the country. These new prospects include the Castle Hill Wind Farm and the Slopedown Wind Farm Project in Southland. I discuss the Castle Hill Wind Farm project in more detail below.

3.5 Genesis Energy is a State Owned Enterprise that commenced operations on 1 April 1999. Shareholding Ministers hold shares in Genesis Energy on behalf of the Crown (Minister of Finance 50% and the Minister of State-Owned Enterprises 50%). The State Owned Enterprises Act 1986 requires that Genesis Energy, amongst other things, operates its assets in the same manner as a commercial

¹ Electricity Authority *Percentage market share by energised ICP* (December 2011)

business and acts as a good corporate citizen. To achieve this Genesis Energy seeks to make the best use of the resources available to it for the benefit of its shareholders and New Zealand.

4. DEMAND AND SUPPLY OF ELECTRICITY

4.1 The on-going growth in New Zealand's economic activity is such that, even with energy efficiency improvements, electricity demand will inevitably continue to rise for the coming decades. Demand for electricity has been growing at an average rate of 1.6% per annum since 1990² and MED's 2011 outlook predicts demand growth will slow to 1.4% from 2010 to 2030. A 1.4% growth in demand will require that approximately 80 to 230MW of additional new generation capacity is installed each and every year.

4.2 Historically hydro generation, such as the TPS, has dominated New Zealand's generation capacity, meeting up to 70% of New Zealand's electricity demand. The supply mix has become more balanced as increased generation capacity from thermal, geothermal and wind resources has been commissioned.

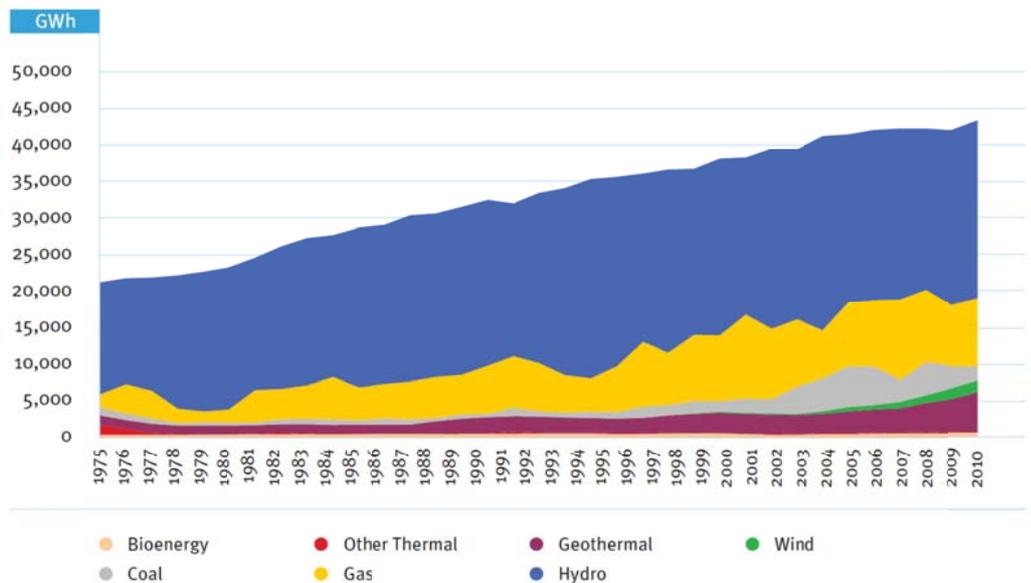


Figure 1: Annual Electricity Generation by Fuel Type³

² MED Energy Outlook 2011

³ MED New Zealand Energy Data File 2011

- 4.3 Genesis Energy is acutely aware that electricity is critically important for the social and economic welfare of New Zealand, and is a cornerstone of a modern society. Ensuring security of supply and providing for future load growth are therefore matters of utmost national importance. Critical to meeting New Zealand's current and future demand is ensuring that access to existing generation sources is maintained. However, future demand cannot be met by maintaining and optimising existing generation capacity alone. New generation will be required.
- 4.4 The Government has made a strategic commitment to the target of 90% of New Zealand's electricity generation being from renewable energy sources by 2025. The National Policy Statement for Renewable Electricity Generation ("NPS REG") seeks to provide policies to enable this target to be reached.⁴

5. GENESIS ENERGY INTERESTS

- 5.1 Genesis Energy's interests in the One Plan, and specifically Policy 7-7, relate to the operation of the TPS and implications on the CHWF project.

The Tongariro Power Scheme (TPS)

- 5.2 As shown in Figure 2, the TPS is located on the central volcanic plateau south of Lake Taupo. The TPS is a hydro-electric power generation scheme constructed progressively between 1960 and 1983 and first becoming operative in 1971. It consists of three power stations: Rangipo, Tokaanu and Mangaio. Together these stations have an installed capacity of 362 MW.
- 5.3 The TPS is located south of Lake Taupo in the central North Island. In broad terms, the scheme operates by channelling water from headwater streams flowing from the mountains of the Central Volcanic Plateau to the three power stations: Tokaanu, Rangipo and Mangaio,

⁴ *Preamble*, National Policy Statement for Renewable Electricity Generation 2011 and New Zealand Energy Strategy 2011.

before discharging it to Lake Taupo. Water is channelled via two major diversion schemes lying either side of the Ruapehu-Tongariro mountain chain: the Eastern and Western Diversions, both of which are included in the Manawatu-Whanganui Region.

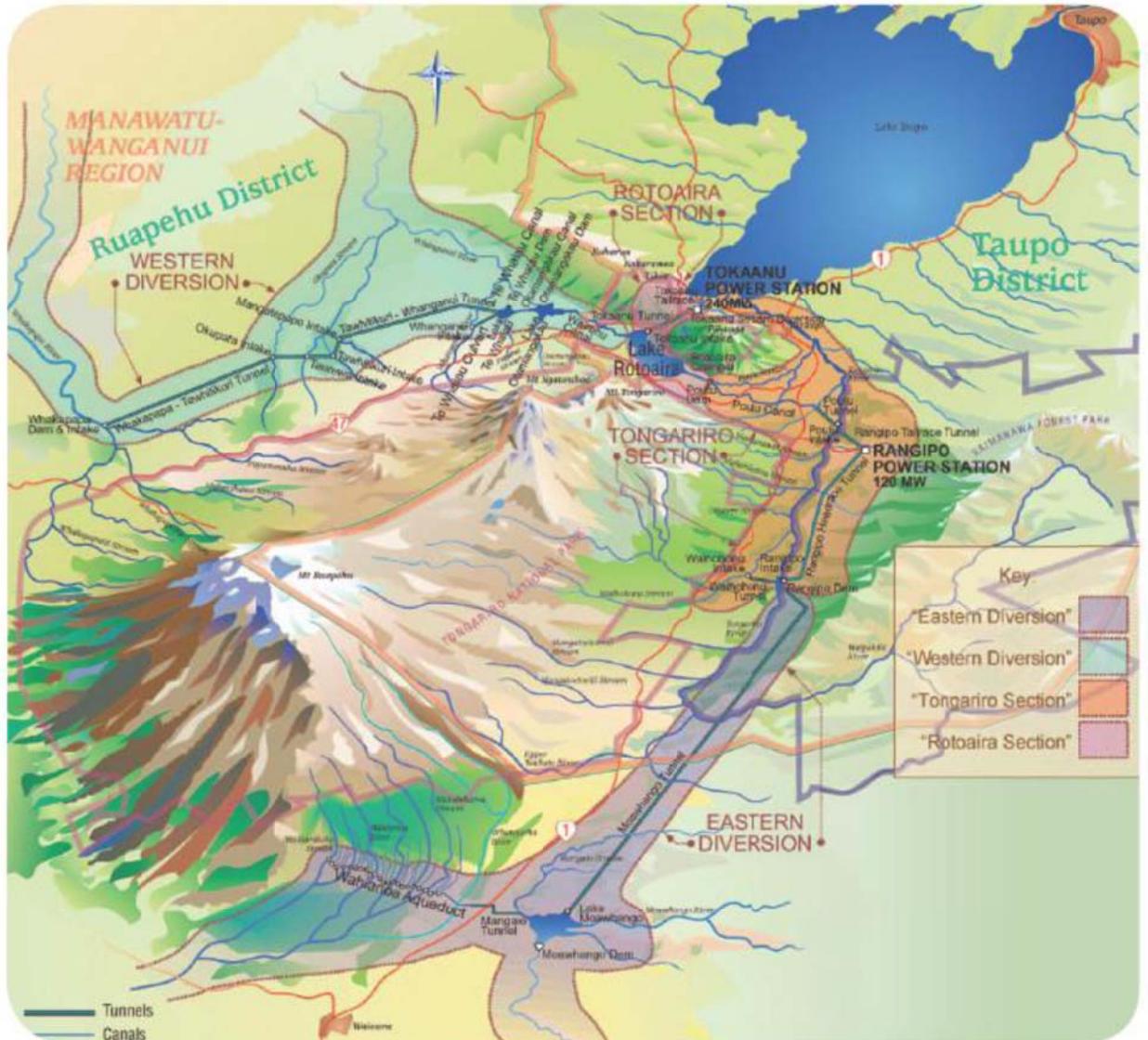


Figure 2: The Tongariro Power Scheme (TPS)

The Eastern Diversion

5.4 The Eastern Diversion collects water from the streams and rivers draining the southern flanks of Mt Ruapehu, where the Wahianoa Aqueduct collects water from 22 tributaries of the Whangaehu River. The water passes in a tunnel under the Desert Road to eventually

discharge into Lake Moawhango. The entirety of the Eastern Diversion lies within the Manawatu-Whanganui Region.

- 5.5 The Mangaio Tunnel conveys water from the Wahianoa Aqueduct to Lake Moawhango. In 2008 Genesis Energy commissioned the Mangaio Power Station on the outlet to this tunnel, which utilises the existing head gradient to generate an additional 2 MW of electricity from the TPS.
- 5.6 Lake Moawhango is an artificial storage lake formed by the damming of the Moawhango River. The lake is the main storage reservoir for the TPS. Water is transported from Lake Moawhango northward towards the Tongariro River by means of a 19.2 kilometre long tunnel.

Western Diversion

- 5.7 The Western Diversion diverts the flows from the Whakapapa River and the headwaters of the Whanganui River and tributaries through a series of tunnels and canals to Lake Rotoaira, to join water collected in the Eastern Diversion.
- 5.8 The Whakapapa River is dammed by the Whakapapa Intake immediately below its confluence with the Papamanuka Stream. Here water is diverted in a long tunnel toward Lake Te Whaiiau. Along the path of this tunnel, intake dams collect and divert the headwaters of four small streams: the Okupata, Taurewa, Tawhitikuri and Mangatepopo streams. The tunnel discharges into Lake Te Whaiiau, a small lake formed by damming the Te Whaiiau Stream. The headwaters of the Whanganui River are also diverted via a small tunnel into Te Whaiiau Stream and then into Lake Te Whaiiau.
- 5.9 From Lake Te Whaiiau, water flows into Lake Otamangakau, another artificial lake formed by damming the Otamangakau Stream. A man-made canal called the Wairehu Canal then carries the water through to Lake Rotoaira, the main storage lake for the Tokaanu Power Station.

- 5.10 As shown in Figure 2 most of the Western Diversion, up to the Wairehu Canal which crosses the boundary on its way to Lake Rotoaira, is within the Manawatu-Whanganui Region.

National significance of the TPS

- 5.11 The TPS is particularly significant because water from the Horizons region diverted through the scheme is used in not only the TPS stations but enables Mighty River Power to generate additional electricity from the Waikato Hydro System. The water from the TPS also supports the generation of electricity at Huntly by contributing to the cooling water taken from the Waikato River for the station. Any loss in water supplied to TPS is therefore lost to generation throughout the Waikato hydro system and constrains generation at Huntly.
- 5.12 The water from the TPS contributes approximately 1,800 GWh per annum (including Waikato River generation) to New Zealand's electricity supply. In the 2010 calendar year, total generation of electricity in New Zealand was 43,401 GWh.⁵ The Tokaanu power station is also used as a frequency control station (controls the power system frequency) when required.

Castle Hill Wind Farm

- 5.13 The Manawatu-Whanganui region is important in that it contains extensive natural water and wind resources of sufficient quality that they are able to be harnessed economically for renewable energy generation. There is significant potential within the region for renewable generation developments.
- 5.14 An example of a nationally significant renewable electricity development is Genesis Energy's Castle Hill Wind Farm project in North Wairarapa, within the Manawatu-Whanganui Region. Attached and marked Appendix 1 is a map showing the location of the Castle Hill Wind Farm site.

⁵ Ministry of Economic Development (2011), New Zealand Energy Data File.

- 5.15 The Castle Hill Wind Farm project involves up to 286 wind turbines with a nominal capacity of up to 860 MW of renewable electricity generation. The Site (which comprises the area where agreements have been negotiated with landowners) covers some 30,000 ha and is located approximately 20 kilometres northeast of Masterton, 20 km east of Eketahuna and Pahiatua and 15 km west of the Wairarapa Coast north of Castlepoint.
- 5.16 Resource consents for the Castle Hill Wind Farm are required from four local authorities – Horizons Regional Council, Tararua District Council, Wellington Regional Council, and Masterton District Council. Applications for resource consents were lodged on 1 August 2011. A joint hearing before independent commissioners commenced 28 November 2011 and adjourned on 7 Dec, recommencing from 24 January this year. The Commissioners have now adjourned the hearing.

6. GENESIS ENERGY'S POSITION ON POLICY 7-7

- 6.1 Our approach to the One Plan process is to ensure that access to existing generation sources is maintained and protected and that potential sources of electricity generation are not unnecessarily restricted.
- 6.2 The possible implications of Policy 7-7, as outlined by Mr Matthews, relate to both the TPS and the Castle Hill Wind Farm project. Genesis Energy is interested in ensuring that the Policy:
- a. Is consistent with sustainable management as described in Section 5 to the Resource Management Act 1991;
 - b. Recognises and provides for the development, operation, maintenance and upgrading of new and existing renewable electricity generation facilities in the manner set out by the NPS REG. Specifically, that the Policy enables future decision makers to have particular regard to the need to locate

renewable electricity generation where renewable energy resources are available.⁶

- c. Provides reasonable certainty as to how the Policy will be interpreted and applied by future Council decision makers. As an infrastructure operator and investor we value regulatory certainty, in particular being confident that an objective, policy or rule will be applied in a consistent manner.

6.3 The evidence of Mr Matthews sets out the details of the relief that Genesis Energy has sought for Policy 7-7.

7. CONCLUSION

7.1 Ensuring security of supply and providing for future load growth are matters of national importance. Specifically the NPS REG has confirmed the national importance of existing and new renewable electricity generation facilities. Policy 7-7, insofar as it may diminish the ability for existing generation plant to generate or inappropriately constrain the construction of new generation, is therefore of particular concern from a national perspective and to Genesis Energy.

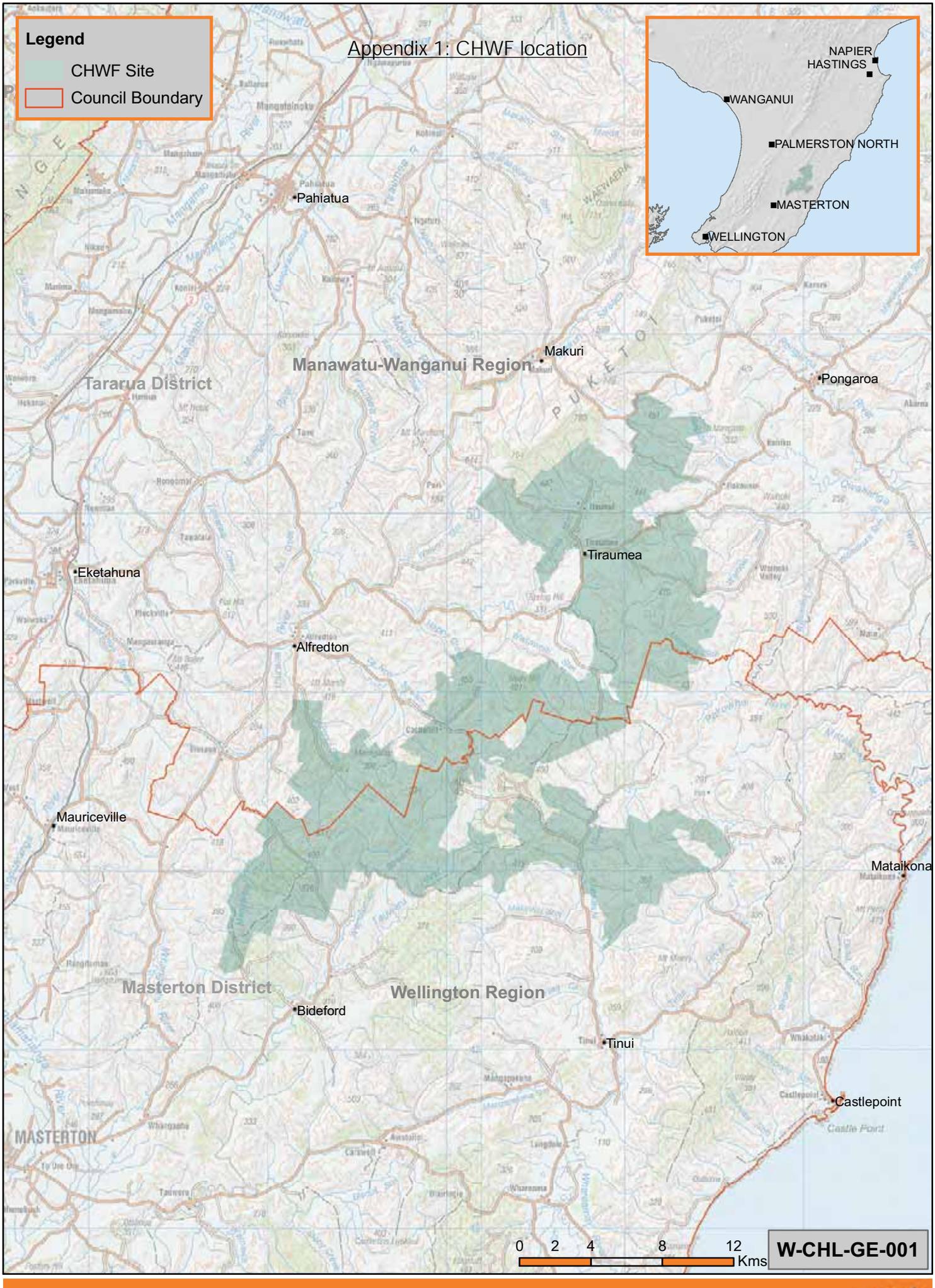
⁶ Policy C1 to the NPS REG

Legend

CHWF Site

Council Boundary

Appendix 1: CHWF location



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