

Highlights Package

Summary of evidence of Andrew Renton on Submission points by Transpower NZ Ltd Before Waikato District Council

Proposed Waikato District Plan: Hearing 22 – Infrastructure

- 1 My name is Andrew Renton. I am the Senior Principal Engineer at Transpower NZ Ltd (“Transpower”) and have over 26 years’ experience in transmission engineering.
- 2 This summary briefly sets out an overview of my Primary and Rebuttal Evidence, which stands notwithstanding any other Primary or Rebuttal Evidence, including the S42A Reports.

National Grid assets in the Waikato District

- 3 Transpower continues to invest in the National Grid both in terms of maintenance and enhancement of its asset base. Transpower’s development and investment strategy is centred on maximising the use of existing infrastructure, therefore maintaining the environmental footprint for as long as possible before the introduction of new infrastructure. Within the Waikato District, the focus for the next 10 years will generally be on maintaining and enhancing the existing assets, noting there are upgrade and reconfiguration projects presently being explored in the district as outlined in my Primary Evidence and that of Mr Campbell.

Typical Operation, Maintenance, and Upgrade Works

- 4 It is vital that Transpower is able to operate, maintain, develop and upgrade the National Grid in order to deliver a reliable, secure supply of electricity nationally and to the Waikato District.
- 5 Routine maintenance in the Waikato District mainly includes inspections and patrols, foundation repair and replacement, insulator and steel replacement, and conductor repairs – these are generally works associated with aging, wear and tear, environment or willful damage. Maintenance work involves staff, vehicles and, at times, drones and helicopters, as well as large earthmoving or crane equipment on work sites. Physical access to transmission lines is required for all routine and urgent maintenance and project work. Underbuild may delay, or in some instances severely restrict and compromise Transpower’s ability to undertake maintenance or project work and the very nature of the works can significantly inconvenience people if they work or live near the lines when the works are being carried out. The same issues and challenges arise in the event of a system fault.

Risks to People and Property

- 6 In addition to the above challenges associated with the ability to operate, maintain, develop and upgrade the National Grid lines, there are safety issues and reserve sensitivity effects Transpower needs to manage.
- 7 Transpower operates its assets as safely as possible, but there are residual risks due to the high voltages being carried on the lines. Electric shocks can be caused by earth potential rise, step and touch voltages, induced voltages, conductor drop and flashovers. Hazards can also be caused by trees coming into contact with or close proximity to overhead lines.

- 8 Transmission lines can also cause concern or annoyance, because of how they look, their mechanical or electrical noise, electrical interference, and perceived health effects. These effects can lead to requests for Transpower to underground lines, or move lines away, or to raise or lower conductors.

Impacts of Third-Party Activities

- 9 In my view, there are certain activities, primarily sensitive activities, commercial buildings and intensive development (including some farm buildings) which should be avoided beneath transmission lines because of electrical risk, annoyance caused by the transmission lines, and the difficulties these activities can cause when Transpower needs to access, maintain, upgrade and develop the lines. Subdivision in the vicinity of the corridor and lines require management as the above issues can be addressed best at an early stage. Land disturbance activities also need to be managed to take the lines into account, in all areas as disturbance can undermine transmission line support structures or reduce conductor to ground clearances to unsafe levels.

Management of Risks

- 10 The planning approach adopted by Transpower is that of a National Grid corridor comprising a National Grid Yard and National Grid Subdivision Corridor, both of which have an evidential basis. The yard and corridor widths are a bare minimum to ensure that Transpower's maintenance, repair, upgrade and operation activities are not compromised. The application and adequacy of NZECP34:2001 is often raised as a means of managing the risks, however in my experience, while NZECP34:2001 may adequately provide for the minimum safe electrical distances for smaller buildings and structures and some activities around transmission lines, it does not prevent underbuild and does not ensure the operation, maintenance, upgrade and development of the Grid is not compromised.

Rebuttal Evidence – National Grid Subdivision Corridor

- 11 In response to evidence on the width of the National Grid Subdivision Corridor, in my Rebuttal Evidence I outlined the evidential basis and rationale for the width of the corridor as well as the challenges associated with the application of the Auckland Unitary Plan approach to the Waikato District. My Rebuttal Evidence stands, and I concur with the S42A Rebuttal Evidence response¹.

Andrew Renton, 15 October 2020

¹ Section 42A Report Rebuttal Evidence, Paragraph 46