

# **BEFORE THE HEARINGS COMMISSIONERS**

In the matter of

**The Proposed Manawatu District Plan Change 55**

And

**Transpower New Zealand Limited (Submission S11 and FS7)**

Submitter

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**Statement of Evidence in Chief of Dougall Campbell for  
Transpower New Zealand Limited dated 5 December 2016**

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## Executive Summary

1. Transpower New Zealand Limited (**Transpower**) operates the National Grid, which transmits electricity throughout New Zealand. The National Policy Statement on Electricity Transmission 2008 (**NPSET**) requires the National Grid to be appropriately recognised in the Proposed Manawatu District Plan Change. Councils were required to implement the NPSET by 10 April 2012. The Proposed Plan Change must give effect to the NPSET.
2. Corridors around the National Grid are necessary to:
  - (a) Ensure the network can be efficiently operated, maintained, developed and upgraded by providing the working and access space to do this.
  - (b) Manage reverse sensitivity effects.
  - (c) Ensure sensitive activities are generally not provided for in the area directly under lines.
  - (d) Protect the safety of both the National Grid and people working or living close to it.
3. Transpower's approach to NPSET implementation is to ensure that it only seeks the minimum district plan restrictions necessary to ensure the NPSET is given effect. Under this approach, Transpower seeks different size setbacks depending on the asset type (for example whether it is on poles or towers). Activities are now considered very specifically, so that only those activities which have a real potential to compromise the integrity of the Grid are sought to be non-complying, with everything else permitted (except subdivision).
4. This is the key reason why Transpower does not support restricted discretionary or discretionary activity status. Activities that could have appropriately been consented as restricted discretionary or discretionary activities have been captured within the permitted activity status, and conversely those activities not appropriately consented as restricted discretionary or discretionary activities, have been captured within the non-complying activity status.

5. Transpower wishes to see appropriate planning provisions included in the proposed Plan Change to ensure that Transpower is able to operate, maintain, develop and upgrade the National Grid to enable a sustainable, secure and reliable supply of electricity nationally and to the Manawatu.
6. Transpower considers that the amendments and additions set out in Ms Eng's evidence will best give effect to the objective and policies of the NPSET. Ms Eng supports some of the recommendations within the s42A report but seeks a number of amendments to give effect to the NPSET and the Regional Policy Statement.
7. The provisions Transpower seeks in Manawatu District are generally consistent with the provisions Transpower seeks elsewhere around New Zealand to give effect to the NPSET.
8. The provisions are not consistent with the corridors Transpower seeks for new build. For new build, Transpower seeks a much wider and more restrictive corridor – that generally coincides with the maximum swing of the line. The corridors sought in the Proposed Plan align with the matters in policies 10 and 11 of the NPSET.
9. Transpower also experiences a range of reverse sensitivity effects from those who carry out activities or wish to develop land near its assets. These complaints are, for instance, about visual or noise effects or effects on agricultural operations. Restriction of sensitive and incompatible development near the lines will reduce the likelihood of reverse sensitivity effects.
10. Subdivision sets the framework for land use going forward, and careful regulation of subdivision can prevent the creation of unusable (or severely constrained) lots. Well-designed subdivision can also ensure:
  - (a) sufficient vehicle access to, and working space around, National Grid assets;
  - (b) design and orientation of buildings to reduce the likelihood of reverse sensitivity effects;

- (c) landscaping or horticultural plantings planned as part of the subdivision that will not adversely affect the National Grid; and
  - (d) the land (new lot) can be developed (i.e. accommodate a dwelling or commercial operation) and used in a way which maintains safe separation distances.
11. Earthworks can have a range of effects on the National Grid, and should be regulated by district plans. The New Zealand Electrical Code of Practice for Electrical Safe Distances (**NZEC34:2001**) does not protect working and access space near National Grid assets, and cannot be relied upon to give effect to the NPSET.

### **Introduction**

12. My full name is Dougall James Campbell. I am the Environmental Policy and Planning Group Manager at Transpower. My relevant experience, qualifications, and commitment to comply with the code of conduct for expert witnesses are included in **Appendix A**.
13. I confirm that I am authorised to give this evidence on behalf of Transpower.

### **Scope of Evidence**

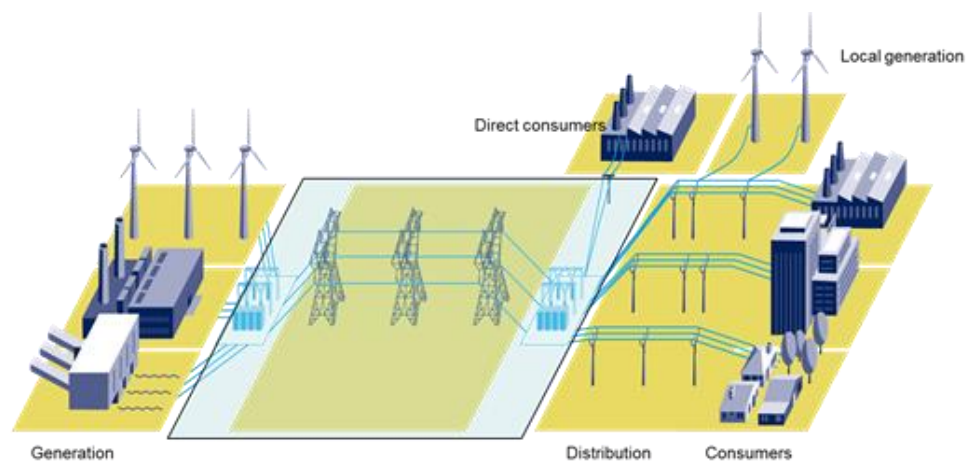
14. My evidence will address the following:
- (a) Transpower and the National Grid;
  - (b) Transpower's assets within Manawatu District;
  - (c) Effects of, and on, the National Grid, including earthworks, buildings and structures, sensitive activities, hazardous facilities, mobile plant, and subdivision;
  - (d) The New Zealand Electricity Code of Practice for Safe Distances 34:2001 (NZEC34:2001).
  - (e) Transpower's approach to National Grid Yards and Corridors
  - (f) Transpower's approach to implementing the NPSET; and

(g) Conclusions.

### Transpower and the National Grid

15. Transpower is the State Owned Enterprise that plans, builds, maintains, owns and operates New Zealand's electricity transmission network, the National Grid. The Grid links generators to distribution companies and major industrial users (see Figure 1 below). It extends from Kaikohe in the North Island to Tiwai in the South Island and transports electricity throughout New Zealand. The National Grid is a form of linear, interconnected infrastructure. What happens at one point on the Grid can have consequences much further away, even in another region.
16. The National Grid comprises around 12,000 km of transmission lines and some 167 substations across the Country. This is supported by a telecommunications network of some 300 telecommunication sites, which help link together the components that make up the National Grid.

**Figure 1: Electricity Industry in New Zealand**



Source: Electricity Commission, Electricity in New Zealand, 2009

17. 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, as all of the Country's major industries, as well as homes,

schools and hospitals, are reliant on a secure and reliable supply of electricity.

18. The National Grid is a physical resource of national significance. The NPSET recognises that the sustainable, secure and efficient transmission of electricity via the Grid plays a vital role in the wellbeing of New Zealand, its people and the environment.

#### **Transpower's assets within Manawatu District**

19. The National Grid line that traverses the Manawatu District are:
- (a) Bunnythorpe – Haywards A 220kV transmission line on single circuit steel lattice towers;
  - (b) Bunnythorpe – Haywards B 220kV transmission line on single circuit steel lattice towers;
  - (c) Bunnythorpe – Ongarue A 110kV transmission line on single circuit towers steel lattice towers;
  - (d) Bunnythorpe – Mangahao B 110kV transmission line on single circuit poles;
  - (e) Bunnythorpe – Woodville B 110kV transmission line on single circuit towers steel lattice towers;
  - (f) Bunnythorpe – Whanganui B 110kV transmission line on single circuit towers steel lattice towers;
  - (g) Bunnythorpe – Whakamaru A 220kV transmission line on single circuit towers steel lattice towers;
  - (h) Bunnythorpe – Whakamaru B 220kV transmission line on single circuit towers steel lattice towers;
  - (i) Bunnythorpe – Wairakei A 220kV transmission line on single circuit towers steel lattice towers; and
  - (j) Brunswick - Bunnythorpe A 220kV transmission line on single circuit towers steel lattice towers.

20. These assets are shown on the map in **Appendix A** to my evidence. The National Grid transmission lines cover a total of approximately 341km within Manawatu District traversing approximately 600 land parcels.

### **Transpower's projects in the Manawatu**

#### *Bunnythorpe – Haywards A & B 220 kV Conductor Replacement Project*

21. The existing conductor (the wire) on the Bunnythorpe – Haywards A and B transmission lines is almost 40 years old and requires replacement due to the accelerated wear on the conductor from the local coastal environment. The replacement conductor is slightly larger (about 3mm larger in diameter) and will provide better corrosion resistance, be more energy efficient and provide more capacity. The voltage of the lines will remain the same (220 kV).
22. Works on the project began in 2015 and are due to be completed in 2020. As well as the conductor replacement, enabling works such as foundation strengthening, tower strengthening, tower lifts, mid-span earthworks and some vegetation trimming/removal is required

### **Effects of, and on, the National Grid**

#### *Risks of transmission lines to people and property*

23. The main electrical hazard risk associated with high voltage transmission lines is receiving an electric shock. The risk and severity of electric shocks varies depending on the transmission voltage and type of exposure (e.g. direct human contact, mobile plant, or vegetation). Risks are most likely to be highest within 12 metres of a transmission line. However, some associated effects can be transferred further than this.
24. Lethal electric shocks can be caused by:
- (a) earth potential rise;
  - (b) step and touch voltages;
  - (c) induction voltages;

- (d) conductor drop;
  - (e) flashovers (coming into contact with the line conductors or where the electricity arcs from a conductor onto an object such as a structure or fence); and
  - (f) vegetation growing too close to a line and causing a flashover.
25. There are a number of other risks to people and property including damage due to fire and the risk of structure failure. These hazards can occur as a result of third party activities (such as mobile plant or machinery) coming into contact with conductors, and excavations occurring too close to structures or mid-span thereby reducing clearance distances. It is essential that the use and location of this machinery is carefully considered to avoid contact with the conductor. Coming into close proximity to a live conductor and causing a flashover (i.e. the flashover will occur prior to contact) can:
- (a) compromise the safety of the machinery operators or workers or members of the public in or near the machinery and result in electric shock;
  - (b) damage the machinery or the line itself; and
  - (c) affect the operation of the Grid and the security of supply.

### *Earthworks*

26. Uncontrolled earthworks can undermine the support structures or generate dust. This can result in the build-up of material on the National Grid lines and increase the wear on the equipment reducing its useable lifespan. Excavations or mounding mid-span can increase risks by reducing the clearance between the ground and conductors. Excavated areas or piles of earthworks soil can also restrict Transpower's ability to access and locate the heavy machinery required to maintain support structures around the lines, and may lead to potential tower failure and significant constraints on the operation of the lines, such as power outages. For these reasons, Transpower seeks controls on earthworks near the National Grid.



27. Photograph 1 below shows earthworks that have occurred around a tower as part of development for a recent urban subdivision in Whitby, Porirua. The earthworks were well within 12m of the support structure.



**Photograph 1 - Earthworks in Porirua**

28. As well as possibly undermining the stability of the tower structure, the earthworks in the photograph have also restricted vehicular access to the tower and the area where Transpower can place machinery required to maintain the tower. This compromises Transpower's ability to maintain the existing transmission line.
29. Transpower worked with the developer to ensure that the constraints on the line introduced by the developer were mitigated and the long-term stability of the towers is retained. This required the installation of a shot-crete surface on the cut batter. Such works are an example of how earthworks conducted close to the Grid can undermine Transpower's ability to operate and maintain the network effectively and efficiently. Ultimately the manner in which Transpower carries out maintenance at this tower will need to change to address the effects.

*Example 1 Earthworks compliant with ECP34*

ARI-HAM-A 110kV pole line off Orepunga Road (Karapiro)



30. This photo illustrates earthworks that have been undertaken on a property that are technically compliant with NZECP34:2001. It is considered that NZECP34:2001 on its own does not give effect to the NPSET and Policy 10. As a result of the earthworks in vicinity of the pole structure, Transpower's ability to operate and maintain the network has been compromised. The batter slope may become unstable as a result of erosion and slipping. Access to the site is now severely restricted and there is no ability for Transpower to operate heavy plant on the elevated platform. Ongoing engineering checks will be required to monitor the effects of erosion and to check the stability of the foundations.

*Example 2 Earthworks Hastings District – Ground clearance violations*

31. Recently, Transpower investigated the clearances from the conductor to ground for two Hastings properties and found they did not comply with the NZECP 34:2001 – failure to comply with the code is an offence.
32. The investigation found that the minimum clearance is only 5.3m from the ground to conductor at everyday conditions (instead of 6.5m). This violation occurred as a result of earthworks – i.e. is due to a build-up of soil under the conductors. The soil has been excavated onsite, spread

under the line and has now reduced the required ground clearance to an unacceptable distance.

33. Transpower now needs to arrange temporary fencing of the two earthworks sites to prevent any further access under the circuit (wires).
34. Letters have been sent/hand delivered to each landowner formally warning them of the issue and the need to keep clear of the lines until the rectification work can be completed.
35. Transpower will liaise with Hastings District Council about the earthworks and consenting aspects of the development. As a result of the earthworks people and property are at risk and the lines operation has been constrained. Methods of mitigation are likely to include remediating the site back to original ground level and compliance with NZECP34:2001, or erecting new taller pole structures.





#### *Buildings and structures*

36. Buildings and structures pose a risk to the operation of the National Grid, compromise Transpower's ability to maintain the line, and place any residents or workers at those facilities at risk from electrical hazards.
37. In a rural context this includes buildings such as dairy sheds, piggeries, poultry farms, commercial greenhouses, and factories. These buildings and activities either are at greater risk of effects from the transmission lines, or put the line itself at greater risk.
38. The cumulative effect of allowing these activities under lines will be further restrictions on Transpower's ability to maintain and upgrade existing lines.
39. I consider that it is common sense to locate activities that cannot be easily shut down to enable work on transmission lines, or are likely to have reverse sensitivity effects, away from the lines so they will not need to be vacated for maintenance work or scheduled upgrade and development work.

*Sensitive Activities and Reverse Sensitivity*

40. Transpower's lines and substations were traditionally established within rural areas because this typically minimised constraints resulting from neighbour complaints. However, over time, through land rezoning and population growth, some of the lines and substations have had urban development and sensitive activities establish around them. While land use change and development occur at different rates throughout the country, it may only take one or two poor planning decisions to create significant difficulties, and over the lifetime of an enduring asset such as the National Grid, land use change can be dramatic.
41. The nature of lines and substations means that they are required to operate 7 days a week and 24 hours a day. People can become sensitised to the noise emitted from a substation site, or corona discharge from a line, even when they are operated within accepted noise limits. Visual amenity can also become an issue for people living next to lines and substations. Substations and lines can also cause concern or annoyance because of electrical interference and perceived electric and magnetic field ('EMF') health issues.
42. Transpower has experienced reverse sensitivity effects from those who carry out activities or wish to develop land near its assets. Examples of reverse sensitivity effects include:
  - (a) Requests for:
    - i. conductors to be raised, to allow fruit trees to grow higher (and cherry pickers to be used) beneath them;
    - ii. lines to be placed underground, to reduce visual impacts;
    - iii. a tower to be raised and a new tower erected to allow for commercial bulk building development to occur under a line; and
    - iv. poles to be increased in height to allow earthworks and driveway access to a new dwelling;

- (b) Complaints about noise from lines, or their visual impact, because of their effects on new residential development nearby. These complaints can be accompanied by requests to underground or relocate lines.
43. Transpower experiences reverse sensitivity issues or complaints (such as those described above) annually.
44. In addition, people often use consenting processes for upgrading and development works as an opportunity to raise concerns about existing infrastructure.
45. I am not aware of activities such as these leading to complaints against Transpower (and therefore reverse sensitivity effects) in the Manawatu. However, in my view, complaints and attempts to restrict Transpower's activities are inevitable if sensitive and intensive activities are allowed to locate near existing National Grid lines. Transpower's approach is to seek to prevent any instances arising through appropriate plan provisions and controls - a preventative and proactive approach.
46. The area or distance from the lines within which reverse sensitivity effects can arise may vary according to the type of issue raised, but they are most noticeable in the area where the conductor swings out to. Depending on asset type, conductor swing can be out to 37 metres either side of the centreline.

#### *Mobile plant*

47. Disruption to the National Grid was caused by inappropriate activity under a National Grid line when North Auckland and Northland experienced an outage in October 2009. This outage was the result of an intensive industrial/commercial activity operating under the line. The disruption was caused by a forklift carrying a container and hitting the 220kV transmission line between Otahuhu and Henderson. The incident significantly impacted power supply into Auckland and caused 280,000 customers to lose electricity, including the entire Far North District. It was lucky no one was killed. This also resulted in reverse sensitivity effects because Transpower had to raise a tower to prevent future similar incidents.



48. Figure 1 below shows the outage area—North Auckland and Northland.



**Figure 1—North Auckland and Northland**

49. Photographs 2, 3 and 4 below show the forklift, the flat tyre sustained in the incident, and the damage done to the conductor.
50. This risk caused by mobile plant can occur anywhere forklifts, cranes, and heavy machinery is used, including rural areas.



**Photograph 2**



**Photograph 3**



**Photograph 4**

51. More recently, an incident occurred when a tractor carrying a crop auger on a local road hit the overhead High Voltage Direct Current ('HVDC') line in Canterbury. The crop auger caught fire, and the HVDC line faulted a number of times. Again it was fortunate no one was injured. However, this incident, and others like it, are avoidable.



**Photograph 5—Site of Canterbury incident**

*The need to regulate subdivision near transmission lines*

52. The regulation of subdivision in the vicinity of the National Grid will enable Council to give effect to Policy 10 of the NPSET and to manage the potential effects of a subdivision on the operation/maintenance and upgrading of our network - including retaining an area for access to the network.
53. Subdivision within the Manawatu District should be regulated near the line and substation because:



- (a) Transpower is not always recognised by councils or applicants as being affected by subdivision applications;
- (b) Transpower wants to avoid the creation of lots on which it would be difficult or impossible to construct a complying dwelling;
- (c) The public has an expectation that at least one dwelling can be constructed on each legal title. The requirement to show a complying building platform is consistent with this;
- (d) Subdivision can disrupt access to lines because it often precedes changes to land uses, including fences and driveways (which can prevent or facilitate access to land). Transpower has the legal right under the Electricity Act 1992 to access the lines but the physical ability to access the lines needs to be protected;
- (e) Transpower cannot rely on NZECP34:2001 to protect the National Grid from the effects of subdivision, as it does not restrict the subdivision of land near lines or substations, and it allows underbuilding;
- (f) Subdivision also means Transpower will in the future need to manage its operations around a greater number of landowners and their activities;
- (g) Subdivision provides the framework for future land use, and is enduring. Integrated planning at the subdivision stage can avoid land use conflicts later. In particular, restricted discretionary activity status at the subdivision stage provides the opportunity for Transpower and the Council to consider whether buildings can be sited in a safe manner and so as to avoid reverse sensitivity effects arising from the visual, noise and other impacts of the National Grid (consistent with Policy 10 of the NPSET).
- (h) While there may not be intense subdivision pressures in Manawatu District currently, the Proposed Plan needs to establish rules to avoid potential future adverse effects on its National Grid infrastructure. Given the significance of the issues

involved, and the directives of the NPSET, this is an appropriately proactive approach to pursue.

54. Transpower seeks a restricted discretionary activity subdivision rule, which defaults to non-complying if it is not possible to show a complying building platform on the new lots. This is a simple and effective framework for promoting appropriate outcomes, which is consistent with the NPSET and the approach adopted by many local authorities around NZ, including those in low growth areas.

## Examples of subdivision near the National Grid

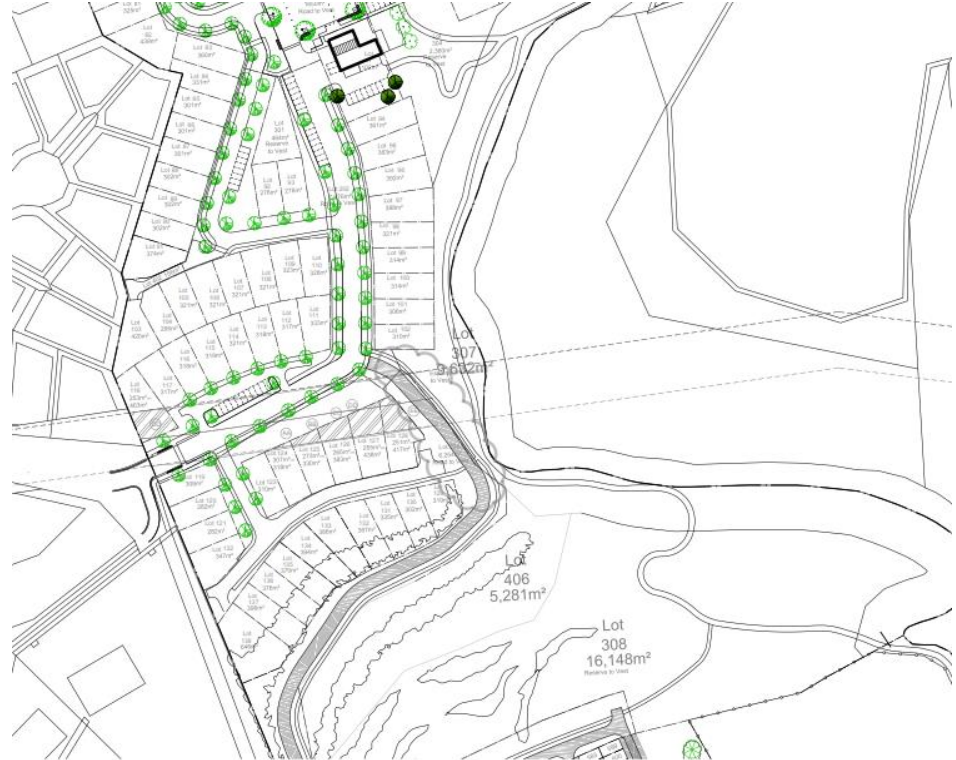
### *Subdivision near lines at Pokeno*

55. Transpower supported the subdivision at Pokeno shown in Figure 2 below.



corridor) and outside of the distribution line easement for each new allotment.

### *Subdivision at Lake Hayes, Queenstown*



**Figure 3: Subdivision in Queenstown**

57. The subdivision in Figure 3 in Queenstown is another example where Transpower has supported subdivision around the National Grid. The application was approved with “no build” consent notices imposed as conditions on the lots within the corridor.

### *Examples of subdivisions Transpower wishes to avoid*

58. Transpower is also aware of subdivisions which it would have preferred had not occurred. At 7A Cormack St, Mt Roskill and 362 Blockhouse Bay Road, Blockhouse Bay, Auckland, subdivision consents were granted, creating new rear lots directly beneath a transmission line. Transpower was not involved or identified as an affected party to either of the original subdivision applications.

59. The owners of each site are now trying to develop the sites for residential uses. However, because each site is wholly located within the 12m Yard (as shown in **Figures 5 and 6**), Transpower cannot support new residential dwellings on these sites.



Figure 5 - Site at 7A Cormack St and 12m Yard corridor



Figure 6 - Site at 362 Blockhouse Bay Rd and 12m Yard corridor

#### **New Zealand Electricity Code of Practice for Safe Distances 34:2001 (NZECP34:2001)**

60. As discussed, NZECP34:2001 seeks to protect persons, property, vehicles and mobile plant from harm or damage from electrical safety hazards by setting out minimum safe electrical distances.



61. Some members of the public and interest groups around the country have asserted that compliance with NZECP34:2001 should be enough to ensure the safe and efficient use of land near the National Grid.
62. However, those assertions are incorrect. This is because they fail to acknowledge the range of electricity transmission issues covered by the NPSET. For example, NZECP34:2001 does not address the other electrical safety hazards and the potential effects of the lines on activities in close proximity to them.



*Hastings – Ground Clearance violations*

63. Further, NZECP34:2001 does not protect the integrity of the National Grid from the effects of other activities. For example, it does not restrict the subdivision of land near the lines, and it allows underbuilding. In addition, NZECP34:2001 does not distinguish between sensitive and non-sensitive activities, and therefore it does not prevent the types of inappropriate development contemplated by the NPSET from occurring.
64. To emphasise the point, NZECP34:2001 does not consider the environmental effects of activities on the National Grid, or the potential environmental effects of the National Grid on third party activities.

65. Transpower is only made aware of any breaches of NZECP34:2001 when developments are already in place, and when the cost of mitigating the associated risks is usually very high.
66. Developments that comply with NZECP34:2001 can also constrain maintenance activities on the lines and increase the number of people exposed to and potentially at risk of adverse effects.
67. I note however that the National Grid Yard and Corridor sought by Transpower will not replace the requirement to comply with NZECP34:2001; nor will these provisions eliminate all risks. The provisions sought will reduce risks, but anyone near the National Grid needs to be continually alert to the hazards associated with this infrastructure.

#### **Transpower's Approach to National Grid Yards and Corridors**

68. National Grid Yards and Corridors around transmission lines have eight important purposes for the Manawatu District:
- (a) *To ensure that sensitive activities, such as residential development, are generally not provided for near National Grid structures and lines:* Sensitive activities include the establishment of dwellings, schools and papakainga close to the Grid. The purpose of Policy 11 of the NPSET is to prevent sensitive activities such as these from being established near the National Grid.
  - (b) *To manage reverse sensitivity effects:* These effects occur when people undertake activities close to an existing line or structure. For example, National Grid lines can cause noise (especially in damp weather), reduced visual amenity, radio and television interference, perceived effects of electric and magnetic fields from the lines, and interference with landowners' business activities beneath the lines. These effects often lead to requests by neighbouring land users to impose constraints on existing lines. These complaints and constraints are reverse sensitivity effects.
  - (c) *To protect the integrity of the National Grid (structures and lines):* Structures, earthworks and other land use activities that are too

close to a line can affect the stability of that line, and contribute to electricity outages. The presence of these structures and activities can also increase the need for, and thereby the risk associated with, mobile plant (such as cranes, forestry haulers and excavators) and other equipment. Transpower wishes to ensure that safe electrical distances are maintained so the risk of coming into contact with the lines is minimised.

- (d) *To enable efficient and safe maintenance and operations:* National Grid Yards/Corridors provide a relatively clear area for line workers to gain access to the line and structures in order to conduct operational maintenance on high voltage equipment, sometimes at great heights. The Yards also limit the need for costly work-arounds (for example, bypass lines), when maintaining and operating the Grid.
- (e) *To allow for any future potential upgrade requirements of the asset:* For example, Transpower must be able to control “non-sensitive” large scale buildings and buildings that are intensively used (regardless of scale) under the lines, as these can inhibit upgrade activities. This reflects Policy 10 of the NPSET.
- (f) *To provide the residential, rural, commercial and industrial electricity users in the Manawatu District with a reliable and secure supply of electricity.*
- (g) *To provide the community, Council and Transpower with the knowledge and confidence that the lines are being managed in a safe and sustainable manner.* To provide certainty as to how that management is being achieved within the NPSET framework.
- (h) *To minimise safety hazards:* Electricity transported at high voltages can cause serious, or even fatal, injuries to people who come in close contact to lines. Corridor management is therefore of paramount importance as it provides for the wellbeing, health and safety of people.

69. The Proposed Plan Change will regulate activities for the foreseeable future and Transpower considers it is important to look at possible future activities even if they do not currently exist.
70. Transpower values its relationship with councils, the community and landowners and endeavours to work with them to reach the best outcome for all parties concerned. Transpower works with councils around the country prior to, and after notification of plan changes intended to give effect to the NPSET. Transpower continues to engage with councils once operative plan provisions are in place, including involvement in the resource consent process.

### **Transpower's Approach to Implementing NPSET**

71. As stated above, councils were required to implement the NPSET through appropriately recognising the National Grid in a District Plan by 10 April 2012. Transpower's approach to implementing the NPSET across the country has been to require land use setbacks (often referred to as "yards") and subdivision rules and corridors to ensure the safe and sustainable management of the National Grid, third party activities, and landowner usage near the assets. These outcomes have been achieved through the ongoing policy and plan review and plan change processes undertaken by many regional, district and city councils throughout New Zealand.
72. The provisions Transpower seeks in the Manawatu are generally consistent with provisions sought elsewhere around the country, including Kaipara, Whangarei, Palmerston North, Whanganui, Western Bay of Plenty, Southland Waimate, and Central Otago Districts and the Christchurch Replacement District Plan.
73. Transpower seeks, and has sought in the Proposed Plan Change, a 12 metre setback either side of the centreline and from support structures where sensitive activities would be non-complying.
74. Transpower also seeks a 32m subdivision corridor. Subdivision has restricted discretionary activity status within this corridor provided a complying building platform locates outside the 12m Yard. The



subdivision requires non-complying consent if the building platform is located within the Yard.

75. Transpower seeks regulation of subdivision within corridors to prevent the creation of unusable or severely constrained lots.
76. The Yard and Corridor provisions Transpower seeks to give effect to Policies 10 and 11 of the NPSET in an integrated manner, taking into account:
  - (a) Conductor swing calculations. Buildings and land use activities within the 12m Yard are effectively under the conductors in normal wind conditions. Buildings and land use activities in the subdivision corridor could be under the conductors in high wind conditions;
  - (b) The maintenance, access and workspace requirements. The 12m Yard will allow the support structures and conductors to be accessed, and provide sufficient space for most (but not all) maintenance activities. The 12m yard will not eliminate all inconvenience caused by operation and maintenance activities, nor necessarily ensure full access for maintenance activities is provided in all circumstances - it attempts to strike a reasonable balance;
  - (c) An understanding that restrictions on land uses (both the geographical extent of land restricted and the range of uses restricted) need to be justified and allow for continuing reasonable use of the land. Some of Transpower's operation, maintenance, upgrading and development could be carried out more efficiently if a larger National Grid Corridor was provided. However, as day-to-day maintenance is not carried out in high winds, it was considered more reasonable to focus on the 12m Yard for restricting land use;
  - (d) Transpower does not consider resource consent should have to be obtained for activities which are unlikely to compromise the National Grid now or in the future. Unnecessarily requiring resource consent will add unnecessary costs, both for the

landowner and Transpower (who would be notified of the applications); and

- (e) The need for the District Plan provisions to be clearly understood by Plan users, and enforceable by the District Council.

- 77. The corridors are based on the operational and maintenance needs of Transpower's existing assets. They have not been sized to provide for major rebuilds or new lines.
- 78. For new lines projects, Transpower's general approach is to obtain a designated corridor and an easement over the affected properties involved in the project. Both the designation and easement would contain restrictions on the activities within the designated/easement area i.e. Transpower seeks clear corridors to ensure the safe and efficient operation of the line. Transpower seeks a corridor that is clear of buildings and structures (other than fences) and restricts all earthworks unless Transpower agrees. Such a restrictive approach is not considered appropriate for the corridors that are required to implement Policies 10 and 11 of the NPSET – those corridors are the minimum Transpower requires, and are a compromise position.
- 79. The corridor and yard provisions sought by Transpower go beyond compliance with NZECP34:2001. This Code of Practice made under the Electricity Act and Regulations, relates to electrical safe distances - it does not address the resource management matters in Policies 10 and 11 of the NPSET. Transpower does not support simple reliance upon NZECP34:2001. NZECP34:2001 will not ensure the National Grid infrastructure and surrounding land are proactively and sustainably managed for the future.

## **Conclusions**

- 80. The National Grid is critical to the social and economic wellbeing of the Manawatu District and our nation generally. The NPSET requires that the National Grid be recognised and provided for in the Proposed Plan Change.
- 81. Policies 10 and 11 of the NPSET also require that other activities around the National Grid do not compromise the operation,

maintenance, development and upgrading of the infrastructure, that reverse sensitivity effects are managed, and that sensitive activities are generally not provided for around the infrastructure. Transpower has refined its approach to the implementation of the NPSET in districts around the country. For the reasons set out above, Transpower requests that the Proposed Plan Change include the provisions appended to **Ms Eng's** evidence.

82. This relief will ensure integrated management of activities through the District Plan to provide for sustainable development of both the National Grid infrastructure and other natural and physical resources, both of which are critical for the future development of the Manawatu.

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Dougall Campbell  
5 December 2016

## Appendix A – Relevant Experience and Qualifications

1. I am the Environmental Policy and Planning Group Manager at Transpower. 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 for twelve years, and during this time I have had experience working in various roles; including:
  - (a) As a Grid Programme Delivery Specialist. This role involved developing a lessons learned and continuous improvement strategy and process for Grid Projects.
  - (b) As the Environmental Planning and Stakeholder Manager on the Alliance Management Team of the Transpower Alliance. I was responsible for the environmental planning, strategy and policies, and processes to deliver and monitor all of the necessary environmental approvals for the 400kV capable overhead line section of the North Island Grid Upgrade Project (**NIGUP**). This line traverses 185km from Whakamaru (North Taupo) to Brownhill Road (South Auckland).
  - (c) Carrying out stakeholder relationship responsibilities of the Transpower Alliance, ensuring that key stakeholders are informed, risks are identified and reputations are enhanced.

- (d) As a Senior Environmental Planner/Environmental Project Manager for NIGUP. My responsibilities included developing strategy for consenting major projects, managing the environmental consortium appointed to deliver NIGUP, through to the final Notices of Requirement, managing the resource consent documentation and the Board of Inquiry process.
  - (e) Providing planning advice to support the implementation of Transpower's Grid Vision investigations and its System Integration investigations.
- 3. I have a Bachelor of Regional Planning Degree and a Diploma in Business Studies from Massey University. I have 21 years' experience working as an environmental planner and I am a member (Intermediate) 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 2014. 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.