

# Submission on the review of the Electricity (Hazards from Trees) Regulations 2003

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## Release of information

Please let us know if you would like any part of your submission to be kept confidential.

☒ I would like to be contacted before the release or use of my submission in the summary of submissions that will be published by MBIE after the consultation.

☒ I would like my submission (or identified parts of my submission) to be kept confidential, and **have stated below** my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

## Introduction

1. It is difficult to overstate the importance of electricity. To provide for the needs of people and communities, it is critical that there is, and continues to be, sustainable, reliable, resilient and efficient transmission of electricity. Recent severe weather events in the central and upper North Island, resulting in widespread power outages, have vividly demonstrated why this is the case.
2. Against this background, Transpower New Zealand Limited (**Transpower**) welcomes the release of, and opportunity to comment, on the discussion document on *Review of the Electricity (Hazards from Trees) Regulations 2003* (**Discussion Document**).
3. However, while we support the review of the Electricity (Hazards from Trees) Regulations 2003 (**Trees Regulations**), more is needed – the right tree needs to be planted in the right place from the outset. Forestry replanting must also occur in the right place. Further, a comprehensive review is required of all the regulations (and legislation) relating to tree planting, trimming and removal, and financial incentives for doing so in order to achieve better outcomes. Until the entire regime is aligned, security of electricity networks will continue to be undermined. This review should include:
  - Rules under the RMA<sup>1</sup> which require resource consents for mandatory trimming, felling and removal of trees that put lines at risk;

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<sup>1</sup> These rules should include district plan rules, and those in national environmental standards, including for Electricity Transmission and Freshwater.

- The proposed National Policy Statement on Indigenous Biodiversity, which will increase the consenting burden (time and cost) for mandatory tree trimming or removal. It may also dictate certain outcomes for the benefit of indigenous fauna;
  - The Climate Change Response Act – which has the effect of encouraging tree owners to plant too close to lines, and delay harvest<sup>2</sup> to benefit from the Emissions Trading Scheme (ETS), when these trees must ultimately be removed due to placing lines at risk<sup>3</sup>.
4. This submission primarily focuses on issues and risks associated with trees near overhead lines. However, poorly located forestry can also impact on underground cables and substations<sup>4</sup>.

## Executive Summary

5. Transpower seeks that the Trees Regulations are amended to address the risks of trees falling into lines, not merely growing into them. Our preferred approach is two-limbed (similar to the approach to constructing buildings near lines contained in NZECP34<sup>5</sup>):
- Firstly, a broad brush (albeit more conservative) approach which sets clear parameters for safe planting around lines, without engineering input;
  - Secondly, a more accurate assessment which could be carried out at the election of the landowner/tree owner prior to planting (or replanting), or Transpower if the trees are already in existence to assess the risk to lines.
6. The broad brush approach would:
- Set a trigger distance around lines, broad enough to capture tree fall risk (say 50m from the centreline);
  - Set a full maturity height limit from the ground at the centreline (~2m), with height increasing at set distances out to the relevant trigger distance. The mature height limit would be conservative and would not require engineering assessment.
7. Should landowners wish to plant (or replant) beyond the limits in the broad-brush approach, they could elect to obtain a site-specific assessment, taking into account the characteristics of the relevant line and site. Transpower would similarly use a site-specific assessment to determine whether existing trees were creating risks. The assessment could use LiDAR Survey/GIS and PLS CADD models of the lines, to identify topography and line characteristics (maximum swing and sag during high wind etc). This assessment would determine the location and maximum height to safely plant, and retain, trees. Transpower would carry out the assessment (or its engineering consultant).
8. As the “ground-up height limit” is conservative, there would be instances where landowners’ could plant trees but would be prevented, and an assessment would not be warranted. An

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<sup>2</sup> In some cases, there may be no intention of harvesting the trees.

<sup>3</sup> The National Environmental Standards for Plantation Forestry is also relevant, but is already under review.

<sup>4</sup> The Discussion Document, refers to the possibility of undergrounding of transmission lines. Undergrounding is not a solution for transmission lines. Tree routes impact on underground cables.

<sup>5</sup> ie. the New Zealand Code of Practice for Electrical Safe Distances (NZECP34:2001).

intermediate step could involve liaison with Transpower and agreement reached about the extent the ground up maximum can be exceeded. This intermediate step would not involve engineering input and would incur minimal or no cost.

9. We consider this approach strikes the right balance between landowner's reasonable use of their land, risks to the National Grid and people and property, and the cost of the rule framework. Further, it would enabling amenity and other trees to be planted in appropriate locations, so they can grow to maturity without repeated trimming and/or removal to address risks to lines.
10. Transpower also seeks that access to land is based on section 23 of the Electricity Act, rather than the administratively burdensome procedure currently in the Trees Regulations.
11. Finally, Transpower is comfortable with the Trees Regulations including different regimes for transmission and distribution, should that be the most appropriate means of protecting lines from trees.

## Background

### Transpower and the National Grid

12. Transpower is the State-Owned Enterprise that plans, builds, maintains, owns, and operates New Zealand's critical high voltage transmission network (**the National Grid**). The network transports electricity from generators to distribution companies and industrial consumers, supplying electricity 24/7 throughout New Zealand.
13. The National Grid extends from Kaikohe in the North Island to Tiwai Point in the South Island – including ~11,000km of overhead transmission line. There are significant areas of vegetation and forestry under and around the Grid – ranging from specimen trees, to national parks, to commercial plantation forestry and shelter belt planting on rural land.
14. Risks from inappropriately planted, and poorly maintained, trees apply regardless of whether the tree is for amenity planting, shelter belts, commercial forestry or crops. Risks also exist in national parks or conservation areas. We have an extensive and ongoing programme to manage vegetation around lines.
15. Currently, around 6000km of overhead lines<sup>6</sup> are at risk from inappropriately located trees. Of this 6000km, ~950km<sup>7</sup> of transmission lines have plantation forestry within 40m<sup>8</sup>. We are seeing an increase in the amount of forestry around our lines with the growth in afforestation, and in particular an increase in carbon farming. We also expect that some of the forestry around our lines will change to shorter rotation exotic plantation forests to provide feedstock for the growing bioeconomy.
16. Climate change is increasing the frequency and intensity of storms and the impacts of fire risk. It is crucially important that the extent of existing inappropriately located trees reduces over

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<sup>6</sup> In other words, over 55% of all transmission lines in the country.

<sup>7</sup> This distance was current as at 2020, but has not been recalculated more recently. Given the growth in carbon forests, and afforestation more generally, the current figure will be greater.

<sup>8</sup> 40m is generally the "fall distance" – ie. the distance where a tree could fall into a line and cause damage. Scion is has indicated they are able to provide a formula for maximum tree growth.

time, and new planting avoids such risks. This approach does not mean no planting can occur, but that the right planting occurs in the right location.

### **Risks of tree planting around the Grid**

17. Planting and growing trees near transmission (and distribution) lines creates risks to the assets, people and stock and other property, and significant costs are incurred managing these risks. The main risks are:
  - Vegetation causing loss of supply. Vegetation blown into overhead lines can cause a fault when vegetation comes too close to the conductors or into the line envelope, as a flashover<sup>9</sup> can occur;
  - Vegetation causing asset damage. Trees and branches can fall into transmission lines, and can damage conductors (wires), poles and towers. Additional health and safety risks, and risks of trees striking lines, occur when forestry is felled. Slash is also causing asset damage;
  - Vegetation causing a flashover resulting in wildfire. Vegetation related flashovers have the potential to ignite a fire. Under the right conditions, the fire can be sustained and widespread property loss could result;
  - Access being restricted and/or made more difficult, due to location of the planting or slash.
18. The ultimate consequence of these risks is “lights out” for communities, especially smaller regional communities with limited redundancy in the network.

### **Climate change – carbon afforestation cannot be at the expense of the Grid**

19. These risks will increase with increased carbon forests near transmission lines. A large volume of carbon forests, have been, and continue to be, planted near our lines. By way of example, in Northern Hawke’s Bay a large volume of forestry has been planted within 10-15m of our line. We expect to see a significant increase in tree fall issues in the next 20-30 years as these trees mature.
20. Permanent forests will likely grow to increased heights compared to plantations for harvest. The additional height, and age of the trees, will increase the tree fall risk. Further, permanent forests are unlikely to be subject to the same maintenance regimes as plantation forests (eg. pruning, removal of dead stock etc).
21. Transpower appreciates the importance of forestry to our climate change response<sup>10</sup>. While forestry has this role, it cannot be at the expense of the essential supply of electricity, which has a fundamental role to play in electrifying the economy, and meeting our national carbon reduction targets.

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<sup>9</sup> A flashover can occur where a tree touches or comes close to the conductor (wire) and electricity “jumps” to a tree or a major electrical discharge can occur to the tree.

<sup>10</sup> This role for vegetation was recently recognised in the Message from the Ministers in the Discussion Document on National Direction for plantation and exotic carbon afforestation.

## **Climate Change – Increased weather events**

22. Climate change is resulting in increased severe weather events, including more frequent and stronger wind events. The recent severe weather affecting the central and upper North Island is a case in point. During those events trees fell into and struck our lines in multiple locations. Electricity supply was interrupted due to tree strike in Rangipo, and faults occurred on a number of lines. Given the number of trees striking the lines, we were incredibly lucky that entire regions did not lose electricity supply. Extensive damage was done, requiring weeks of costly repair work to our lines. Examples from the recent weather events are discussed in **Appendix A**.

## **Climate Change – Increased Fire Risk**

23. Wildfire risk is also increasing. The risk of fire around National Grid assets will increase with increased afforestation.
24. The historical average return period is 2 years for a vegetation or grass fire arising from a fault caused by vegetation or asset failure on Transpower's transmission lines. To date, none of the fires have led to a sustained<sup>11</sup> fire event. However, the likelihood of ignition leading to a sustained fire is between 0-18%, so it is credible that a large-scale event could occur.
25. On average, 6 fires per year (0.2% of all fires) in New Zealand relate to distribution and transmission lines. The size of an average rural fire related to these lines between 2000-2007 was 35ha<sup>12</sup>.
26. The risk of fires becoming more sustained events causing wider threats to property and life will increase with climate change. Many parts of the country are experiencing hotter, windier and drier weather. They are also experiencing an increased risk of wildfire events, as occurred recently in the Nelson region. Research into estimating climate change effects indicates that fire climate severity is likely to rise significantly in many parts of the country, with a doubling or trebling of fire danger possible in some areas<sup>13</sup>. The changing climate, with its increased risk of fire, is another reason for the right tree to be planted in the right place.
27. The Trees Regulations, with its "just in time" felling of mature edge trees as they enter the growth limit zone (**GLZ**), increases the fire risk profile, as it increases the likelihood of flashover/line strike. Slash also adds to the fuel load.

## **Direct costs of managing risk**

28. Transpower manages these risks by trimming in accordance with the Trees Regulations and otherwise negotiating with forestry owners to trim or fell trees beyond those regulations. A significant amount of time is involved in informal negotiations. We note there have been increased requests over recent years for Transpower to provide observers during forestry

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<sup>11</sup> A sustained fire event is where an ignition leads to continuous flaming combustion and requires management by emergency services.

<sup>12</sup> Analysis of statistics on page 43

<sup>13</sup> [http://www.ruralfireresearch.co.nz/\\_data/assets/pdf\\_file/0006/63933/42390-WildfireRecords.pdf](http://www.ruralfireresearch.co.nz/_data/assets/pdf_file/0006/63933/42390-WildfireRecords.pdf)

<sup>13</sup> [https://www.scionresearch.com/\\_data/assets/pdf\\_file/0019/63901/48389-FutureFireDanger.pdf](https://www.scionresearch.com/_data/assets/pdf_file/0019/63901/48389-FutureFireDanger.pdf)

harvesting, to minimise safety risks when trees are harvested near transmission lines. We also face increased pressure to de-energise lines during harvesting activities<sup>14</sup>.

29. A significant work programme is required to address the risks from vegetation. For the 2021/2022 Financial Year, Transpower had 13,564 work orders to address vegetation that was creating risks to the Grid. This work is summarized in **table 1** below:

Vegetation issue	No. of work orders	% of vegetation work
Vegetation affecting conductor at maximum sag (ie. growing into the conductor)	7,389	54.5%
Vegetation affecting conductor at maximum swing (ie. growing into the area where the conductor swings at high wind)	2,561	18.9%
Fall distance	3,614	26.6%
<b>Total</b>	<b>13, 564</b>	<b>100%</b>

*Table 1: Work orders 2021/2022 Financial Year*

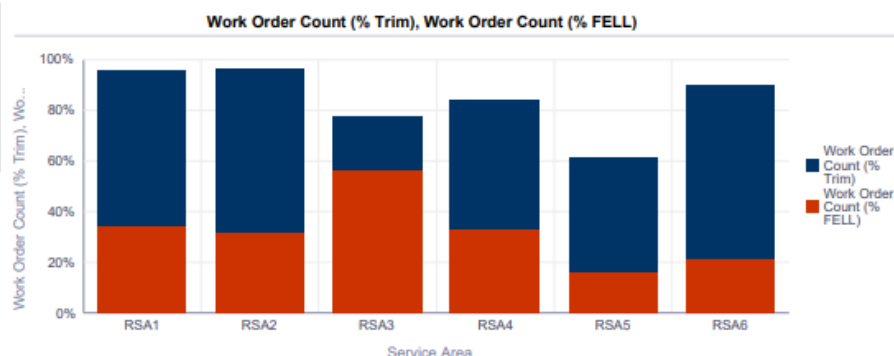
30. The costs for completed work orders exceeded \$5.6M for the 2021/2022 Financial Year. Trimming was in excess of \$3M, and felling in excess of \$2.6M, as shown in **table 2** below.

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<sup>14</sup> We note a de-energised line may decrease security of supply.

### Completed Vegetation Work Orders

Service Area	Work Order Count (% Trim)	Work Order Count (% FELL)
RSA1	61%	34%
RSA2	85%	32%
RSA3	21%	56%
RSA4	52%	33%
RSA5	45%	16%
RSA6	68%	21%
<b>Grand Total</b>	<b>54%</b>	<b>28%</b>



### Completed Work Order Cost Analysis

Service Area	Total Actual Cost (TRIM)	Total Actual Cost (FELL)
RSA1	\$418,319.18	\$445,408.80
RSA2	\$845,942.79	\$631,149.87
RSA3	\$159,651.47	\$306,243.91
RSA4	\$356,553.41	\$533,168.81
RSA5	\$734,308.23	\$349,405.34
RSA6	\$565,063.80	\$395,349.65
<b>Grand Total</b>	<b>\$3,079,838.88</b>	<b>\$2,660,726.38</b>

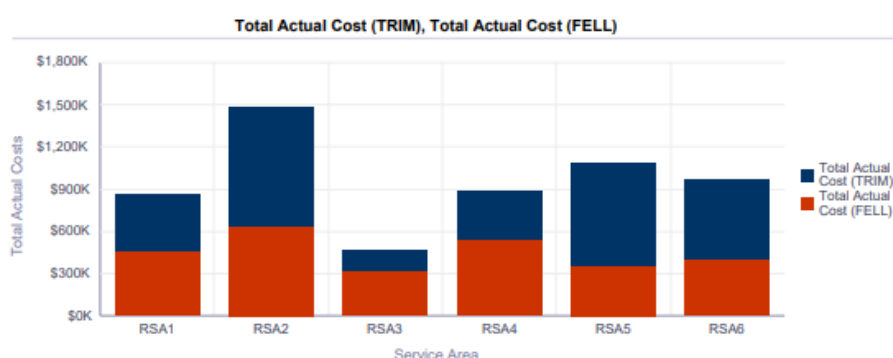


Table 2: Costs for Financial Year 2021/2022

31. **Table 2** also indicates the split between trimming and felling – with a reasonable number of trees needing to be felled.
32. The cost of poorly located trees (and other vegetation) is not merely financial. Significant time and effort is also required – including to negotiate with forest owners to keep the lines safe, and to compensate the forest owners (for keeping the lines safe). Line outages have also been required for high-risk harvests. Arranging line outages is not a simple task, as consultation is required with the electricity industry to ensure there are sufficient alternative supply options to keep electricity supplied to communities. In addition, there are the increased health and safety issues of topping mature pine trees, and working in close proximity to lines.
33. The examples below address both the risks resulting from poorly located forests, and costs of informal vegetation management.

34. **Photo 1**, below left, shows damage to the Bunnythorpe-Wairakei A transmission line caused by plantation forestry falling into the line near Rangipo in 2012<sup>15</sup>. New foundations and tower repairs were in the order of \$500,000.

*Photo 1: damage to National Grid line*



*Photo 2: fire caused by damage to distribution line from tree-fall*

35. **Photo 2**, above right, shows a fire resulting from a tree coming into contact with a distribution line. Similar issues have arisen as a result of trees contacting National Grid lines in Te Horo and Clevedon, and in the South Island where a hedge grew into transmission lines. The machinery used for forestry operations also creates risks.
36. In another incident, forestry workers who were moving hauling machinery through a forest close to National Grid lines, created a 'flashover' (where electricity arcs from conductors onto an object, in this case the machinery) causing damage to the lines and the machinery and creating significant fire and safety risks to the individuals using the machinery.
37. Any forestry activity near transmission lines is problematic and needs to be carried out with extreme care. Consistent with the 'safety by design' approach that Transpower takes in other situations, Transpower considers that the best way to manage this risk is to ensure plantation forestry is located in the right place, and setback a safe distance from transmission lines.

#### **ETS - increasing costs**

38. Transpower is also concerned that there is nothing preventing poorly located forests being registered under the ETS. The ETS provides an incentive for forestry planting, without consideration of the risks, or nuisance, that planting creates.
39. Felling trees in forests that are registered under the ETS will increase Transpower's costs, as landowners expect to be compensated for surrendered ETS units.

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<sup>15</sup> The forest was compliant with the Trees Regulations.

40. Transpower has recently relocated the Bunnythorpe-Ongarue A line, as a result of the road edge slipping away and two tower legs being exposed. A new structure was erected approximately 40m to the side of the original alignment, in a registered carbon sequestration forest. The forest owner claimed over \$300,000 in compensation for loss of 2.74ha of forest and the resulting loss of ETS units.
41. This compensation is illustrative of the amounts that could be claimed for removal of fall distance trees.
42. We are also seeing an emerging issue, with some forest owners being reluctant to retain existing access routes to transmission lines, and requesting compensation for lost planting areas. This reluctance, and in some instance planting over existing access is increasing the cost of maintaining access.

### **Use of LiDAR for more comprehensive vegetation management**

43. Transpower is currently carrying out a feasibility study into vegetation management and the use of LiDAR (light imaging, detection, and ranging). We consider that LiDAR can be used to determine both risks to lines from existing trees, as well as the appropriate location to plan new vegetation.
44. The LiDAR scans are generally taken from airborne craft, such as fixed wing aircraft, drones or helicopters and can provide a scan of previously inaccessible areas, as well as providing a processed 3D view that enables a desk top virtual assessment.
45. Assessments of this kind are becoming increasingly useful in managing vegetation, as they allow understanding of the environmental challenges, topography and physical features that face the land-based vegetation crews tasked with mitigating the vegetation risk.
46. The examples below show recent LiDAR results across Transpower's network. These examples show the immediate risk from established trees, as well as new vegetation growth or plantings that could in the future pose a risk. They also show the differing topographical challenges.
47. **Image 1** below demonstrates the encroachment risks (coloured), fall distance trees that are creating immediate hazards to the line, and a second layer of fall distance trees to the right of the line. To the left are new rows of plantings which could potentially create a future risk to the Grid.
48. Note that the colours indicate encroachments at a distance of < 5.6 metre radius (pink) and <6.1 (blue) from the conductor, including as it swings and sags<sup>16</sup>.

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<sup>16</sup> Lines sag under increasing temperature (either ambient or operating temperature). This sag is a normal feature of operation of lines.

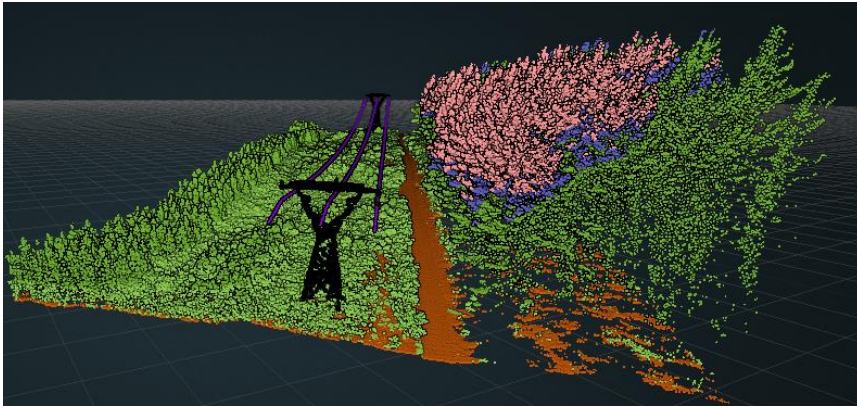


Image 1: BPE-WKM B line, span 0502-503

49. **Image 2** shows the side on view, with a near fully grown pine situated in a gully. As can be seen, the fully grown pine shows no threat to the line. However, many other encroachment and fall risks are shown.

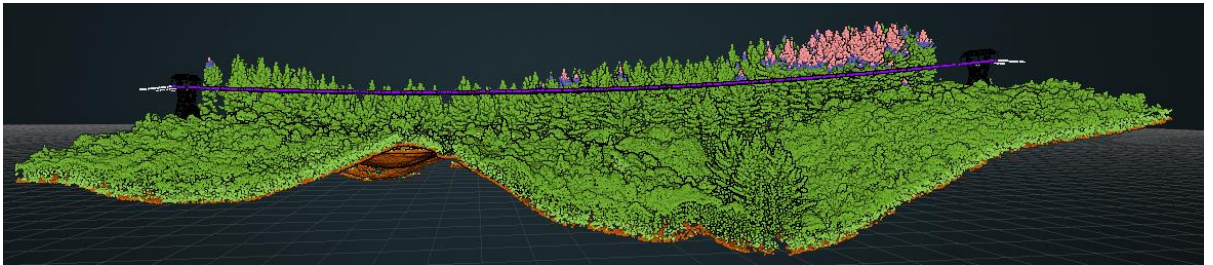


Image 2: side on view BPE-WKM B line, span 0502-0503

50. **Image 3**, to the right, and **image 4** below, show recently felled trees under and adjacent to the BPE-WKM A line (span 508-509), including slash.
51. The trees in **image 3** appear to have been felled towards the line, rather than away from the line (as per the Electrical Safety Guidelines for Forestry Operations).

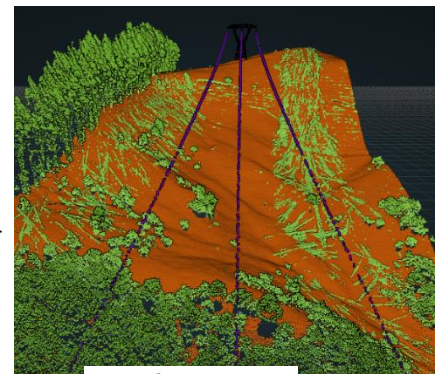


Image 3: BPE-WKM B line corridor view, span 0502-0503

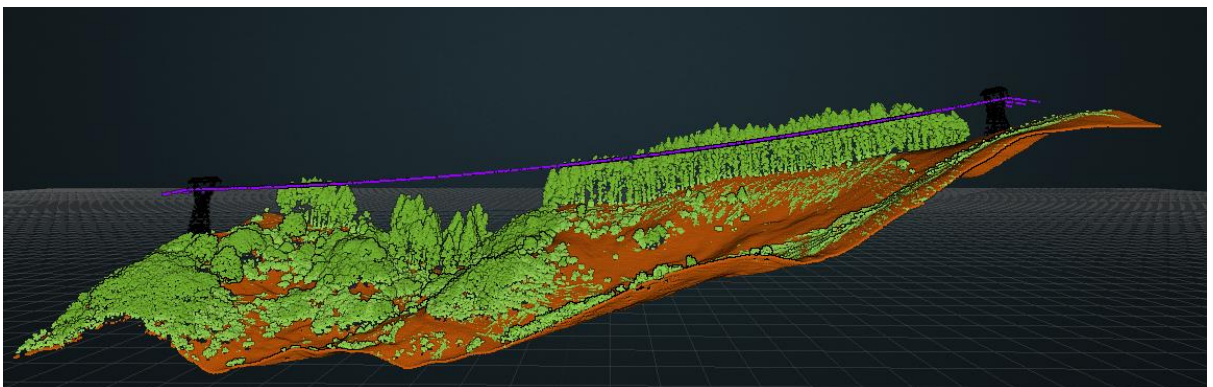


Image 4: BPE-WKM A line (span 508-509)

52. **Images 5 and 6** below show obvious fall distance risks from both sides of the line. They also demonstrate the risk faced by forestry workers when felling plantations of this kind, and the additional cost and effort involved to manage these risks. This line is the main line powering the Hawkes Bay region. The coloured areas indicate encroachment threats.

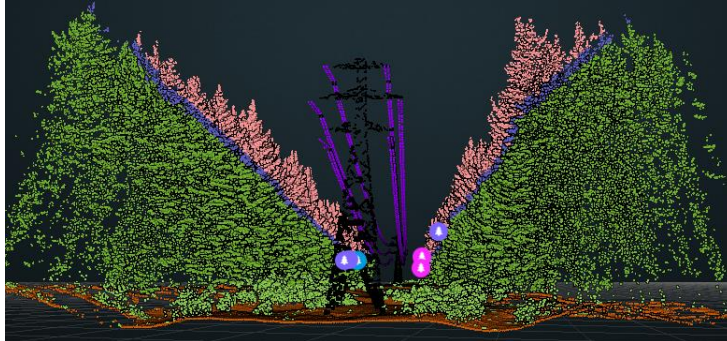


Image 5: WRK-WHI A line, span 0155-0166

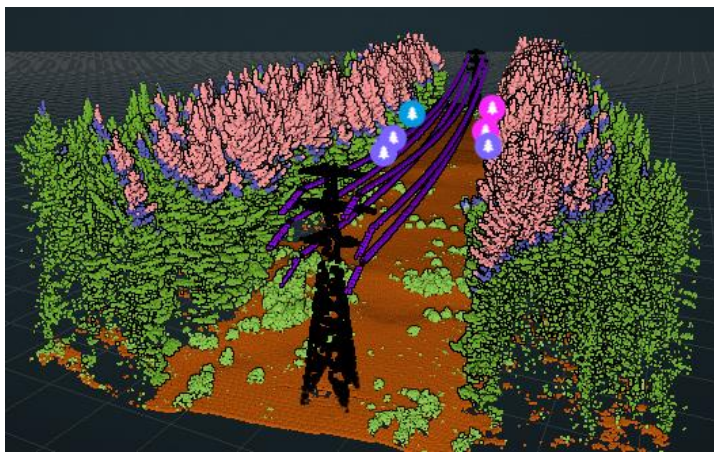


Image 6: WRK-WHI A line, span 0155-0166

## Discussion Document Questions

### Context

**Question 1: Do you agree with the issues that MBIE has identified with the regulation? Why, or why not?**

53. We agree that:

- *“Climate change is predicted to increase the frequency of storms and wind speeds. This will exacerbate the interaction of electricity lines and vegetation and increase the risk to the security of the electricity supply and safety to the public”* (page 9, Discussion Document).
- The Trees Regulations are overly complex and are not delivering effective outcomes for tree owners or works owners.

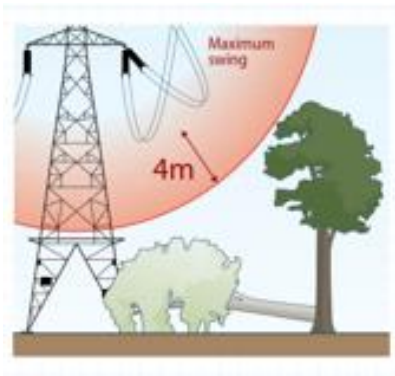
54. The Discussion Document (page 11) states that it *“seeks to identify the scale of the problem and proposes options that balance the public and private costs and benefits of improved*

*security of supply from vegetation management.”* We note that while this statement is made, the discussion of costs appears to be limited to direct costs to the lines owner compared to costs to the tree owner. In our view, the costs are not binary – costs of an electricity outage are much broader – affecting the community more generally. There are also biodiversity costs of repeated trimming of inappropriately planted trees that have become the habitat of indigenous fauna. These broader costs have not been identified in the Discussion Document.

55. Transpower generally agrees with the 7 issues identified, to the extent they are within our area of knowledge. We consider that issues 1 and 5 are most important, followed by 6 and 7.

#### *Issue 1: Fall Risk Trees*

56. Transpower agrees with *Issue 1* that there are risks to lines from trees that are not encroaching on the Growth Limit Zone (GLZ) in a way anticipated by the Trees Regulations, but that would fall during a severe weather event. Image 7 below depicts this issue:



*Image 7: Tree Fall Risk*

57. From Transpower’s perspective, this is one of the two most significant issues with the Trees Regulations, and the reason why we disagree that “*the existing framework is broadly sound*” (Discussion Document, page 10). The examples discussed in **Appendix A** highlight the significant issues facing lines from tree fall and tree strike.

#### *Issue 2: over-trimming of hazardous vegetation*

58. Issue 2 is that vegetation owners consider that the Trees Regulations do little to prevent over-trimming of hazardous vegetation, which can result in unnecessary diminution of economic or amenity value.
59. In our view, there can be no “over-trimming” of inappropriately planted trees. We consider that managing vegetation grown at the notice zone/GLZ is the bare minimum trimming that should occur. It is not efficient. It requires repeated effort, with repeated tree growth.
60. We note that we have obtained ecological advice that removal of vegetation, rather than repeated trimming, may be preferable from a biodiversity perspective. Removal of inappropriately located trees could result in fauna being disturbed once, rather than repeatedly if tree trimming is to occur. Outcomes of this kind may become more common with the introduction of the National Policy Statement on Indigenous Biodiversity (under the RMA or any replacement legislation).

*Issue 3: administrative costs of monitoring encroachment and maintenance of individual trees*

*Issue 4: the “no interest” notice and distinction between “first trim” and subsequent work create confusion and increase costs for works owners*

61. We agree with Issues 3 and 4. We consider that the Trees Regulations are too complicated and administratively burdensome. As a result, Transpower generally obtains the tree trimming outcomes required by the Tree Regulations through negotiation with individual landowners, rather than following the Tree Regulations processes.

*Issue 5: Trees Regulations do not sufficiently consider the impact of new tree planting and the risk it creates for network assets*

62. This is a significant issue for Transpower. Transpower considers that the right tree needs to be planted, or replanted, in the right place. This concept needs to be addressed in regulation. Allowing, or even incentivising, tree planting in areas where lines are put at risk is costly and burdensome, with the cost borne by electricity consumers either through the costs of Transpower managing trees in the vicinity of our lines and in bearing outages when trees fall onto the lines and remove a line from service.
63. We also note that there is wasted cost and effort both by the forestry industry and Transpower with foresters planting trees, pruning and thinning them, and then for them to be felled by Transpower before they can be harvested. In these situations, it is typically Transpower that bears the cost of the removal and surrender of ETS units.

*Issue 6: process for accessing vegetation appears difficult to works owners but is too easy for vegetation owners*

64. We agree that the process for accessing vegetation can be difficult.

*Issue 7: The dispute resolution process appears to be under-utilised*

65. Transpower considers that the dispute resolution provisions in the Trees Regulations (reg 22) are impractical. They only apply after receiving an application for dispensation. This process appears to be time consuming.

***Question 2: What considerations do you believe the Trees Regulations should have in respect to Te Tiriti o Waitangi?***

66. The Discussion Document identifies the consultation undertaken with Māori interests, particularly in relation to land ownership and/or forest ownership. We query whether this focus has resulted in comprehensive feedback on Māori interests in relation to a secure supply of electricity being maintained, and the impacts when there are outages. It is likely that many remote rural communities are disproportionately affected by outages caused by vegetation, given they often have a less diverse supply of electricity.

**Question 3: Do you think that the Trees Regulations should restrict the distance in which new trees can be planted or replanted in proximity to electricity lines?**

67. Transpower considers that new tree planting, and replanting, should be restricted around lines. The lines constrain the activities that can safely occur under, and around, them<sup>17</sup>.
68. Restricting inappropriate planting will significantly reduce these risks. Other benefits of restricting inappropriate planting are:
- The costs of tree removal or repeated tree trimming would be reduced for the tree owner and/or line owner;
  - Trees would be able to grow to full maturity (with resulting amenity and ETS benefits), rather than being trimmed or removed, providing greater certainty to tree owners;
  - Repeated disturbance of the habitats of fauna would not occur (with resulting biodiversity benefits);
  - Reduced health and safety issues, due to a reduced amount of tree work in close proximity to lines.
69. Transpower recently sought restrictions on where forestry can be planted in its submission on the discussion document on changes to the National Environmental Standard for Plantation Forestry<sup>18</sup>. Another option, applying to all trees, could be a broader national environmental standard (**NES**) under the RMA (and any replacement legislation). The benefit of a NES is that the rules may be more accessible for the general public. Transpower is supportive of these options being considered. We are also supportive of greater restriction through the Trees Regulations, should MBIE consider section 169(1)(2)(g) of the Electricity Act permits such regulation.

**Question 4: Arguably the judgement in *Nottingham Forest Trustee Ltd v Unison Networks Ltd* has decisively clarified the responsibility for managing the fall line risk outside of the GLZ. Do you agree, and if so, is further government intervention necessary to address this risk?**

70. The *Unison Networks* judgment is a useful example of private nuisance arising from tree strikes to electricity lines. However, it should be seen as an application of the existing law of private nuisance to the particular situation considered in that case. It is helpful in that it confirms that the rights created by sections 22 and 23 of the Electricity Act 1992 are an interest in land sufficient to enable the owner of the works to bring an action in nuisance for damage to the line, although other judgments (such as in *First Gas Limited v Gibbs*) include the same conclusions.
71. However, the judgment did not comprehensively describe all situations where liability may arise in private nuisance and did not address when tree owners might be negligent. The judgment considered liability in circumstances involving repeated tree strikes, and other

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<sup>17</sup> The location and height of buildings around National Grid lines is constrained under the Resource Management Act 1991, by rules in district plans to give effect to the National Policy Statement on Electricity Transmission (NPSET). The New Zealand Code of Practice for Electrical Safe Separation Distances (NZECP34) restricts the location of buildings, people and mobile plant. NZECP34 is a mandatory code of practice under the Electricity Act.

<sup>18</sup> [Submission on National Direction for Plantation and Exotic Carbon Afforestation](#)

cases will likely determine whether, and what circumstances, liability exists in respect of one-off, rather than recurring, damage.

72. Proving common law liability is expensive and, as was the case in *Unison Networks*, may result in an order for damages for the loss suffered rather than an injunction to prevent the harm. At that point, damage to the electricity works will have already occurred, along with the related safety and fire risks and supply outages.
73. For those reasons, clear restrictions on land uses which can interfere with the safe transmission of electricity and clear rights to deal with those situations when they arise are preferred to reliance on common law rights of action. Transpower seeks a regime that prevents or decreases the likelihood of an initial tree strike.

### **Preliminary issues and options analysis**

#### ***Question 5: Do you agree with our preferred objectives of the Regulation, why or why not?***

74. The Discussion Document proposes two objectives:
- Resilient electricity network – promote adequate electricity supply, particularly in response to a changing climate;
  - Public Safety – Ensure vegetation management is undertaken in a way that provides for public safety.
75. Transpower agrees with the objective in relation to Public Safety. We consider that the objective in relation to a resilient electricity network could be stronger. The reference to climate change is appropriate, given the impacts we are experiencing and expect to continue to experience. However, there is no reference to vegetation management, nor to the risk that inadequate vegetation management creates. A revised objective would read:

*“Resilient electricity network – Ensure vegetation management is undertaken in a way that does not result in risks to electricity supply, particularly in response to a changing climate.”*

#### ***Question 6: Do you agree with our policy assessment criteria, why or why not?***

76. The policy assessment criteria are:
- Criterion 1: Effectiveness – to what extent does this option deliver security of supply and public safety?
  - Criterion 2: Efficiency – to what extent are the administrative costs and compliance cost proportional to the expected benefits, and to what degree are costs allocated to the party best placed to manage them?
  - Criterion 3: Regulatory certainty – how well does this option provide predictability of regulatory outcomes?
77. Transpower agrees with criterion 1 and 3. Criterion 1 aligns with the objectives of the review. Regulatory certainty is important, so that both tree owner and lines owner know the regime they are operating under.

78. Transpower partially agrees with criterion 2. Efficiency is important. Without it, it is likely that parties will act outside of, or bypass, the regime (as occurs under the Trees Regulations now). However, the reference “to what degree are costs allocated to the party best placed to manage them” is ambiguous. Transpower accepts that tree trimming and removal near lines can be a specialist matter that it is best placed to manage. However, we are not best placed to avoid the need for the trees works in the first place – this usually sits with the tree owner in planting, or retaining, the tree. The exception would be where works involve construction of a new line, or relocation of an existing line – in which case the costs should sit with Transpower (as its choice of line location has resulted in the need for tree removal/trimming).

79. We suggest criterion 2 be reworded so that it ends:

*“... and to what degree are costs allocated to the party best placed to ~~manage~~ avoid them being incurred?”*

80. We note Transpower agrees with a double weighting being applied to criterion 1.

### **Issue 1: How should vegetation risks outside the GLZ be managed?**

81. Transpower supports a move to primarily risk-based approach - but a more nuanced approach, as we discuss in response to question 10.

82. The “Summary of key stakeholder views” (page 28) notes the concern of vegetation owners with commercial interests that a risk-based approach would result in their trees being unnecessarily trimmed or cut down. Transpower does not consider that this concern will bear out. As shown above in relation to the LiDAR trial, tree fall risks can be determined with some precision. Trees are unlikely to be unnecessarily trimmed or cut down.

### **Question 7: What are your thoughts on extending the GLZ to cover a larger area, what would be the appropriate distance for the extension and how might this affect you?**

83. While Transpower’s preference is to restrict planting, and replanting, we support an extended GLZ as providing a greater management framework. We consider that an extended GLZ should be a minimum of 30m from the outer conductor of a transmission line – for spans of less than 700m and 50m for spans over 700m. These distances would simplify table 2 in the Schedule to the Trees Regulations.

84. However, we consider that a wider GLZ can be coupled with a risk based approach to enable greater tree planting, as discussed in response to Question 10. This more nuanced approach would result in lesser costs on vegetation owners.

85. We also note that the Discussion Document raises loss of amenity value in many places, including in relation to an extended GLZ. We disagree – amenity planting can continue to occur in a manner that does not place lines at risk. However, the correct species do have to be chosen from the outset, or used to replace inappropriate trees.

**Question 8: Would a ‘likely to interfere with’ approach work if ‘likely interference’ were clearly defined and limited in the regulation? What would this look like to you?**

86. Option 3 is a “likely to interfere with” approach, which removes the current GLZ. This approach is based on section 128 of the Telecommunications Act 2001. It provides for notice to be given of trees creating risks, and places the cost of remedial action on the vegetation owner. If the owner does not comply with the request, the line owner may apply to the District Court for an order (including notice and time of removal/ trimming) that the Court thinks fit.
87. There is some merit in this approach – but we consider the notice provisions in the Telecommunications Act are problematic. The Discussion Document states that the Trees Regulations would “clearly define and limit” what is meant by “likely to interfere.” In the absence of knowing the definition, it is difficult to comment on whether the option would be effective, efficient or provide any certainty. However, there is the potential for this option to result in great uncertainty and a need to obtain Court orders to proceed with necessary vegetation trimming and removal.
88. We note that if the definition and limit related to tree fall risk, with an additional allowance for dying and damaged trees, a “likely to interfere with” approach could be useful.
89. We also consider that the notice provisions for option 3, being based on the Telecommunications Act, would place an administrative burden on lines owners.
90. Transpower has ~11,000 kilometres of transmission lines. A requirement for Transpower to seek orders from the Court over such an extensive area is overly burdensome. We note that other vegetation regimes take a different approach – where the vegetation owner has to initiate any Court process<sup>19</sup>. Transpower considers that this approach is more appropriate.
91. This option would also be high risk. Firstly, there are practical, and safety, issues with the suggested approach of giving notice to a tree owner to carry out the required work. Given the risks of vegetation trimming near transmission lines, Transpower generally carries out work itself. Any regime would need to reflect this approach.

**Question 9: Would a ‘likely to interfere with’ approach work if combined with a risk-based approach?**

92. Subject to the concerns raised in question 8, Transpower considers that a “likely to interfere with” approach could work if it was combined with a risk-based approach. These approaches are essentially the same.

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<sup>19</sup> See Government Rounding Powers Act, Public Works Act, and Local Government Act. These Acts provide that it is an offence to negligently cause or allow obstructions to roads. They provide a regime for the Council/road controlling authority to issue a written notice to any owner requiring them to remove or trim trees that pose a risk to roads. The tree owner has 1 month to comply with the notice. In an emergency, oral notice is enough – the council or road controlling authority can act to remove the immediate danger. If an owner fails to act on a notice, the council or road controlling authority can trim or remove the tree. The tree owner is responsible for all costs associated with the works. Where a tree owner fails to comply with a notice, the council/road controlling authority may carry out the work and claim the costs as a debt from the tree owner. If the occupier wishes to challenge any notice, they must apply to the District Court within 10 working days of the notice. The Railways Act provides a regime for tree removal affecting railways.

**Question 10: What is your preferred option out of the options proposed by MBIE for Issue 1? Are there any options you would recommend that have not been considered?**

93. We consider that all 4 options identified in the Discussion Document have issues, and none are supported outright. We support the general risk-based regimes contained in options 3 and 4.
94. Transpower does not support option 1, the status quo. Nor do we agree that it provides a *“good level of security and public safety”* (Table 9, Discussion Document). As can be seen from the examples in this submission, tree fall risks are an increasing issue for security of supply. The status quo will do nothing to address these risks.
95. We also note that the 4m setback in the existing GLZ is not adequate for 220kV lines. People trimming vegetation must keep a distance of 6m from the conductor, including any tools they may be holding. Accordingly, the existing 4m distance creates safety issues in relation to how to trim vegetation and maintain this safe distance.
96. Transpower considers that a wider GLZ (option 2) is part of an effective and certain regulatory response to tree fall risk. However, as discussed above, it may not be efficient as it is a blunt tool, that could result in trimming or removal of trees that do not pose a risk.
97. Option 3 (*“likely to interfere”*) will be burdensome, due to being based on the approach in the Telecommunications Act. Depending on the method used to *“define and limit”* option 3 could require frequent recourse to the District Court to determine whether vegetation trimming could occur.
98. Option 4 is also not preferred. Option 4 is a new notice category that would allow works owners to issue a warning notice that vegetation outside of the GLZ was posing a risk to the line. The trigger for the notice could be a clearly defined fall-line risk. A risk-based assessment could be required before a notice was issued. This option would utilise the existing structure of the notice system. Transpower supports this approach, to a point. However, as discussed earlier, we consider that the existing notice regime is both impractical and administratively burdensome.

*A further option*

99. Transpower considers that there is a further option – one that follows a similar approach to NZECP34.
100. We consider that one of the flaws with the Trees Regulations is that the safe distance that trees can grow to is measured from the conductor, and conductors move (including in high winds). Landowners cannot understand where they can plant trees, and the maximum height trees can grow to, without obtaining information from the line owner about the characteristics of the relevant line. This removes freedom from the landowners and places a burden on both landowner and lines owner.
101. Transpower’s preference is for the Trees Regulations to take a two-limb approach to restricting inappropriate tree planting:
- firstly, a broad brush (albeit more conservative) approach which is clear for tree owners and landowners, and does not require engineering input;

- secondly, a more accurate assessment which could be carried out at the election of the landowners prior to planting (or replanting), or Transpower if the trees are already in existence.
102. The broad-brush approach would:
- set a trigger distance around lines, broad enough to capture tree fall risk (say 50m from the centreline);
  - set a full maturity height limit from the ground at the centreline (~2m), with the height increasing at set distances out to the relevant trigger distance.
103. The mature height limit would be conservative and would not require engineering assessment.
104. Should landowners wish to plant (or replant) beyond the limits in the broad-brush approach, they could elect to obtain a site-specific assessment, taking into account the characteristics of the relevant site and transmission line. Transpower would similarly use a site-specific assessment to determine whether existing trees were creating risks. The assessment could use a LiDAR Survey/GIS and/or PLS CADD models of the lines, to identify topography and line characteristics (maximum swing and sag during high wind etc). This assessment would determine the location and maximum height to safely plant, and retain, trees. The assessment would be carried out by Transpower (or its engineering consultant).
105. This two-limb approach is similar to the restrictions on buildings in NZECP34. Table 2 of NZECP34 contains ground up maximum height limits for buildings, out to an area either side of the centreline. Table 2 is conservative, and does not require engineering assessment or input from the line owner. Should landowners choose to build closer, they can engage with the line owner and obtain a table 3 assessment, which provides a more accurate height/distance that buildings can be safely built under and around lines.
106. We consider that this two-limb approach strikes the right balance between landowners' reasonable use of their land, risks to the National Grid and people and property, and the cost of the rule framework.
107. As the "ground-up height limit" is conservative, there will be instances where landowners could plant trees but are being prevented, and an assessment is not warranted<sup>20</sup>. An intermediate step could involve liaison with Transpower and agreement being reached between Transpower and the landowner about the extent that the ground-up maximum height limit can be exceeded. This intermediate step would not involve engineering input, and would incur minimal or no cost.

*How should the trigger distance be set?*

108. We have identified a number of ways of determining the trigger distance. At a high level, it could be (in increasing order of accuracy):

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<sup>20</sup> Examples include a landowner wanting to plant a tree in a gully, where a tree would not grow into the lines, or in an urban setting where buildings or other structures would prevent a tree falling into a line.

- a single distance for all National Grid lines – reflecting the maximum swing of the largest line + tree fall distance;
  - a different distance for each voltage/structure type – reflecting the maximum swing of each line type + tree fall distance (eg. the trigger distance for a 110kV pole line would be smaller than for a 110kV tower line, and both would be smaller than a 220kV line);
  - a variable trigger distance, based on the relevant span + tree fall distance.
109. We note that the more accurate the approach, the higher the costs involved. A single distance for all lines would be clear to landowners, whereas a variable trigger distance would likely require an online system to be developed and maintained. Transpower's preference is for single distance for all lines to be used.

*How would the maximum mature tree height limit be set?*

110. We consider that the Trees Regulations must take into account the minimum safe distances of conductors to the ground and the safe separation distances between people, equipment, tools and conductors, as provided for in NZECP34.
111. Table 4 of NZECP34 provides the following minimum ground to conductor clearances for National Grid lines:
- 110kV – 6.5m;
  - 220kV – 7.5m;
  - 350kV – 8m.
112. The safe separation distances for landowners/tree owners from conductors are 4m for 110kV lines and 6m for 220kV and 350kV lines (Table 9 of NZECP34)<sup>21</sup>. Any landowner trimming trees would need any part of their body and their tools to be at least these distances away from the conductor<sup>22</sup>.
113. We also consider that the Trees Regulations should provide an option for landowners/tree owners to safely trim or remove vegetation themselves. However, a conservative approach would need to be provided so that this can be done safely, and in a manner that did not put people or the lines at risk – in this regard, it is difficult to work out the safe distance given conductors sag and move, so any tree owner assessment will only ever be an estimate. Any height limit should take into account trees that exceed their maturity height, and avoid the need for Transpower approval. Given the risks of tree trimming around lines, our preference would be that an additional buffer was provided over and above these distances if landowners are to carry out works themselves.
114. As a result, we consider that the maximum mature tree height limit at the maximum sag/centreline should be 2m for lines of 110kV and above.

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<sup>21</sup> See table 9 NZECP34.

<sup>22</sup> Currently, the growth limit zone is at the minimum approach distance (**MAD**) for 110kV lines and within the MAD for 220kV lines. As a result, trees cannot be managed until they enter an electrically hazardous zone. Landowners could not safely trim or remove any inappropriate vegetation.

**Issue 2: How can the Trees Regulations prevent the over-trimming of hazardous vegetation, which can result in unnecessary diminution of economic or amenity value?**

***Question 11: How do you think a risk-based approach in the Regulation to managing vegetation could be implemented and enforced?***

115. We consider that the LiDAR survey data, combined with PLS CADD analysis would ensure an objective analysis of risks to lines. The trigger for discussion about removal or tree trimming would be based on the height of the trees and distance to the conductor. Enforcement could be via a series of fines, with expanded powers for the tree arbitrator (as we discuss below).

***Questions 12: What do you think are the most important aspects to include in a risk-based approach methodology? Are there any additional issues that you think should be considered?***

116. Transpower considers that:

- the primary matter for consideration in a risk based regime should be the maximum height of the tree and the distance from the conductor;
- site factors, such as topography, would be considered as part of the primary consideration;
- additional setbacks may be appropriate in areas with increased wild fire risk;
- matters such as tree health, defects and condition would be considered, irrespective of tree height or location. Tree health could be used to prioritise tree works.

117. Transpower does not consider that matters such as weather should be determinative. The climate is changing – and we cannot foresee where strong winds will impact trees in any meaningful way, other than to say they will. As an example, the damage to the forest at Rangipo could not have been foreseen. The same weather events resulted in rain and flooding, but less wind, in Hawke's Bay, with lesser impacts of trees falling on lines. The different impacts of the same weather event could also not have been foreseen.

118. Nor do we consider that amenity should be given much if any weight. The Discussion Document (page 35) refers to references in the National Policy Statement for Urban Development (NPS-UD) as a means of understanding amenity. The NPS-UD confirms that amenity is not static, that it will change over time. It also notes that some change may detract from amenity values appreciated by some people, but result in improved amenity being appreciated by others. In our view, this discussion is apt. Removal of inappropriately planted trees may impact on the visual amenity of some people, but a secure supply of electricity will positively impact on the enjoyment of the environment that a greater number experience.

119. Forest harvesting of existing trees increases the risk of interaction with lines. Transpower's approach is to work with forestry companies to understand their tree-felling methodologies. These risks should be addressed in the Trees Regulations. Forestry companies should be required to produce an Electrical Hazard Management Plan (**EHMP**) for its site, with Transpower being required to review and provide comment on the plan. In this regard, the Approved Code of Practice for Safety and Health in Forest Operations requires an agreed felling plan for all trees within two tree lengths, and the EHMP is generally accepted as part of the felling plan.

**Question 13: Do you agree with our view to include the consideration of fire risk in a risk-based approach to vegetation risk, why or why not?**

120. Yes, as discussed in the background section of this submission.

**Question 14: What is your preferred option out of the options proposed by MBIE for issue 2, are there any options you would recommend that have not been considered?**

121. Transpower does not support option 1, the status quo. The Discussion Document (page 37) notes that the status quo appears to lead to more trimming and felling than necessary. It notes that works owners are not confident risks are being efficiently dealt with.
122. The status quo is not effective, efficient nor certain. As discussed earlier, for 220kV lines, by the time notice could be given under regulation 6, the landowner could not carry out the works safely. Yet, the lines owner could not trim or remove the vegetation until it had reached the GLZ.
123. As discussed earlier, the current notice regime is cumbersome, and not supported. Further, the Trees Regulations do not provide a right to enter land to inspect vegetation, or to trim or remove vegetation. Change is required.
124. Transpower's preference is for the Trees Regulations to specifically provide a process for access<sup>23</sup>. This could be:
- five working days' notice to inspect trees;
  - notice that any tree must be trimmed or removed by the landowner or tree owner if it is nearing the limit where a landowner could safely trim or remove the tree;
  - where relevant, give notice that the landowner can no longer trim or remove the tree as it could not occur safely (ie. the NZECP34 Minimum Approach Distance would be entered);
  - provide ten working days' notice to enter and remove the risk (following an assessment of the relative risk of each tree to the network); and
  - emergency access to remedy immediate risk, using a process similar to section 23 of the Electricity Act.
125. We do not consider it necessary for the Trees Regulations to provide an additional step for tree-owners to request evidence of non-compliance. We consider that any notice of entry should cover identification of relevant trees, and evidence of the need to trim or remove the trees as determined by the criteria that would be established. (We note that unless a specimen tree is causing the risk, that any notice of entry should not need to identify individual trees.)
126. Finally, we consider that the Trees Regulations need to provide a process for Transpower to enter land in circumstances where access is being prevented by the tree-owner. This process may need to involve an application to the District Court (like the

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<sup>23</sup> This process could potentially be linked to section 23 of the Electricity Act 1992, for "Rights of entry in existing works," with inspections and trimming relating to "maintenance" or "operation" of those existing works. The Trees Regulations could clarify that the process applies to lines that are not "existing works" for the purpose of the Electricity Act.

Telecommunications Act). While Transpower would prefer to access land with agreement, from time to time National Grid lines are placed at increased risk, due to the landowner refusing to allow access.

***Question 15: Do you have any feedback on the Tree Regulations obligation on works owners to remove danger to persons or property from trees damaging conductors?***

127. As discussed in response to question 16, Transpower considers it appropriate that it has the obligation to remove danger to persons or property resulting from trees damaging conductors. However, as discussed in response to question 14, Transpower must have a right to enter a property in order to carry out necessary works.

***Issue 3: How should the Regulation balance the responsibility of vegetation owners and works owners?***

128. We consider that landowners should be empowered to manage trees on their property, in a way that reduces costs to them. Transpower's suggested approach provides landowners with the ability to:
- avoid planting trees in inappropriate locations or species that will be inappropriate at mature heights;
  - trim or remove inappropriate trees safely before they enter the hazardous area.
129. We consider it important that the Trees Regulations are consistent with Health and Safety at work Act 2015 (**HSW Act**) obligations, including where tree owners are Persons in Control of a Business or Undertaking (**PCBU**). We note that the HSW Act process requires elimination, and only if that is not possible should other methods of managing risk be implemented. The approach by Transpower favours elimination (ie. avoiding inappropriate new plantings, and removal of existing inappropriate plantings).
130. Given the significant security of supply implications from inappropriate vegetation, or unsafe tree trimming occurring, we consider that ultimate management of the risk needs to sit with Transpower for National Grid lines. The Trees Regulations need to allow ongoing proactive management by Transpower, including in circumstances where a landowner is refusing access.

***Question 16: Do you agree with MBIE's view that responsibility to identify risks sites best with works owners?***

131. We largely agree that Transpower is best placed to identify risks around its lines. However, in some instances, tree owners or landowners will have sufficient knowledge of vegetation posing a risk to a line. In such circumstances, we consider that the tree owner should be obliged to report the risk to the line's owner.

***Question 17: Do you agree with MBIE's view that the allocation of the first cut or trim should remain with improvements to its application, and why or why not?***

132. Transpower does not apply the first cut or trim notice provisions of the Trees Regulations on a regular basis. We carry out the work ourselves due to safety issues of working in close proximity to conductor. Transpower's preference is for the new regime to recognise these

issues. The only exception to Transpower's use of the notice is where a landowner is denying access. Accordingly, we do not support the first cut and trim notice regime remaining if it is to apply to all of Transpower's vegetation management activities.

***Question 18: Is there a way to apply the notice system at a higher level than the individual tree?***

133. As discussed earlier, we do not issue cut and trim notices. However, we agree that it should be possible to issue any notices on a higher level than an individual tree. This could involve a plan identifying the area where the trees are located, such as between spans and on particular properties.

***Question 19: What is your preferred option out of the options proposed by MBIE for issue 3, are there any options you would recommend that have not been considered?***

134. Of the options proposed by MBIE, Transpower prefers option 3 – removal of the first cut and trim notice and costs placed on the tree owner. We agree with the Discussion Document that to the extent this provision was dealing with legacy issues, those issues have long passed. We consider that the new regime should be discouraging the retention of trees that place lines at risk. Option 2, by retaining the first cut and trim, encourages retention of such trees, and replanting in the same inappropriate location. It also increases the administrative burden on works owners.
135. The Discussion Document notes that MBIE prefers option 2, on the basis that the landowners whose land the works pass through must sacrifice an amount of economic value. We note that the assets are lawfully established. The lines are a constraint on the activities that can occur around them. Trees planted around lawfully established assets should not be putting them at risk.
136. We note that the Government Roding Powers Act 1989 and Public Works Act 1981 do not contain similar provisions to the cut and trim notice regime. Instead, all costs of removing trees that are causing risks to relevant infrastructure are borne by the tree owner.

***Issue 4: What should be the process for works owners to access vegetation on private land?***

***Question 20: What is your preferred option out of the options proposed by MBIE for issue 4, are there any options you would recommend that have not been considered?***

137. See response to Question 14.
138. Transpower's preference is for any provisions in relation to obtaining access to be based on section 23 of the Electricity Act (other than the Court process regarding disputes). The Tree Regulations could clarify that removal or trimming of trees that are placing lines at risk is a "maintenance" activity. Notice is given to the "owner or occupier" of the land.
139. We note that the Government Roding Powers Act 1989 and Public Works Act 1981 provide for notice to be given to the "owner and occupier" of the land, and the Local Government Act provides for notice to be given to the "owner" rather than needing to go to additional steps to identify the tree owner (to the extent that they are different from the owner or occupier). Cost recovery for the work is from the party that would have carried out the work, should they have acted on the notices issued under those Acts.

## **Issue 5: How should disputes between vegetation and works owners be resolved?**

***Question 21: What is your preferred option out of the options proposed by MBIE for issue [5], are there any options you would recommend that have not been considered?***

140. Transpower prefers option 2 – expanding the scope of the current arbitrator’s jurisdiction. We agree with the reasons identified in the Discussion Document for preferring this option over option 3 (disputes resolved via UDL or mediation). In particular, there is likely to be more confidence in a system that does not require the parties to bear the costs. We also agree that the arbitrator would be able to make broader recommendations, which could be particularly important if the regulations are to change to a risk-based approach.
141. We also consider there would be benefit in extending the role of arbitrator so that it could be regionally based – so they are able to visit the site, and issue decisions in a timely manner.

## **Offences and penalties**

***Question 22: Do you consider that ongoing penalties are a useful element of the current regulatory regime?***

142. Transpower considers that the level of penalty for failing to trim a tree when served with a cut and trim notice is adequate to encourage compliance for residential owners. However, consideration should be given for greater penalties for tree owners where trees are planted for commercial gain.
143. We also consider that penalties should be commensurate for situations where refusal of entry to land causes damage to a line and/or loss of connection. Nothing in the Trees Regulations should prevent commencement of Court proceedings to recover costs of damage or loss of connection. However, we note that if the Tree Regulations include adequate provision for timely dispute resolution, recourse to penalties should not be necessary.
144. We do not consider it appropriate for penalties to be imposed on the lines owner for failing to notify a tree-owner to trim or remove a tree. Instead, we consider that the Trees Regulations should provide a (conservative) ground-up limit (of 2m), and the onus should be on the landowner to meet it. (Transpower would however continue to patrol the lines to manage risks to its assets).

## **Arrangements for monitoring, evaluation and review**

***Question 23: Do you have any comments on our proposals for monitoring, evaluating and reviewing the Trees Regulations, for example when a review of the new Trees Regulations should occur?***

145. Transpower considers that the Trees Regulations should be reviewed at least every 5 years. Given our changing climate, a review to ensure the regulations remain efficient and effective in ensuring security of supply will be important.

**Question 24: Do you have any additional feedback that you would like to provide on the regulation or the options we have proposed?**

146. We wish to raise a number of additional issues.

***Different regimes for transmission and distribution?***

147. Firstly, we note that Transpower's network is different in nature, and location, from the bulk of the distribution networks. We are not opposed to differences in the regimes applying to distribution and transmission, should this be the best means of managing risks to lines.

**Competing regulation – implications for management of risks**

148. As indicated earlier, Transpower is concerned about the inconsistent or competing regulation and policy that has the potential to create hurdles and potentially barriers to removing risks created by trees, and increases the time and costs involved.

149. **Appendix B** contains a summary of the issues associated with the need to trim or fell trees under the Trees Regulations, and the consent requirements in the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (**NESETA**), and the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (**NES-FW**), and as discussed earlier the Climate Change Response Act. Additional policy hurdles to consent being granted are contained in the National Policy Statement on Freshwater Management 2020 and the proposed National Policy Statement on Indigenous Biodiversity.

150. Our experience has been that consenting requirements have resulted in:

- Unreasonable delays due to slow consent processing;
- Significant and unreasonable costs (see examples below);
- Insufficient or short consent durations, requiring ongoing consent applications as the trees continue to grow; and
- Consent conditions that are onerous or unreasonable, such as trimming to the GLZ, resulting in the tree breaching that zone as soon as it grows.

151. Examples of costs incurred for consenting necessary tree trimming are:

- ~\$19,000 to consent ongoing vegetation works in Waipuna Reserve (Auckland), which included consultant fees for planting and assessment of effects assessment and ecologist fees. There are ongoing costs associated with compliance with consent conditions. Council processing costs were ~\$3500;
- ~\$8,000 to consent mid-span vegetation works in a QEII covenanted area (Kapiti Coast District) which included a planning report, ecological assessment, consent lodgement fee and replacement planting;
- ~\$6,000 to obtain a resource consent for vegetation control works on land administered by the Department of Conservation (**DOC**) in the Wairarapa, including a planning report and engagement with DOC, and consent lodgement fees.

152. More recently, increased requirements for offsetting ecological effects of tree trimming and removal are being felt. These requirements will increase costs further. By way of example, Transpower has a project which requires clearance of vegetation that has grown too close to the conductors of two spans of a transmission line (of ~700m length). The transmission line is in a significant ecological area, and has several natural wetlands and waterways nearby.

Initial advice from the consultant ecologist is that to provide a long term solution would generate a need for 9.2ha of offsetting. The alternative is to actively manage the vegetation, requiring more frequent visits and potentially incremental offsetting requirements, ultimately resulting in increased costs, and increased disturbance of the area.

#### **Avoiding forestry planting on access tracks**

153. Transpower has rights of access under the Electricity Act. As discussed earlier, we have recently experienced instances of forestry planting over our existing access tracks. We consider that consideration should be given to preventing forestry planting over access track to existing assets. We will ultimately need to remove the trees (or otherwise clear forestry debris) to get access, so planting in this location will increase our costs and not result in trees being able to grow to maturity.
154. If the regime has Transpower bearing the costs for planting over access tracks, there will be no incentive for such planting to stop.

#### **Land administered under the Conservation Act (and other Acts)**

155. Regulation 8 addresses the obligations for removing risks from trees on land administered under the Conservation Act, or many other Acts contained in Schedule 1 to the Conservation Act. It provides that the tree owner is not liable to cut or trim the tree. It also provides that the works owner is not obliged to ensure the tree does not encroach the GLZ if it is unable to do so due to the requirements of any other Act, or a refusal by the tree owner to allow access to the tree or permit cutting or trimming of the tree.
156. Transpower is concerned about this provision. There should be an ability to remove risks to lines, regardless of land tenure.

#### **General Notice Requirements**

157. Regulation 5 relates to general notice requirements to “customers.” Transpower’s customers are the lines companies, generators and the few direct connects. The requirement to give notice to these customers is an administrative task that appears to serve no purpose – in the majority of cases, the trees are unlikely to be within the control of the lines company, generator or direct connect.
158. This provision may be an example where different regulation is required for distribution and transmission, rather than a one-size fits all approach being applied.

## **Appendix A: Tree fall events**

This appendix contains examples of tree fall impacts on the Grid that have occurred recently, including as a result of the severe weather events in early 2023. Electricity supply was interrupted due to tree strike in Rangipo, and faults occurred on a number of lines. Given the number of trees striking the lines, we were incredibly lucky that entire regions did not lose electricity supply. Extensive damage was done, requiring weeks of repair work to our lines.

Many more examples can be provided, as our workers on the ground are taking before and after photographs of the damage.

### **Early 2023 Severe Weather Events**

#### *Central North Island – Rangipo forest area*

Transpower has a number of assets in the forests in the Rangipo area, where there was widespread destruction of mature forest. We understand that up to \$150 million worth of trees are on the ground and/or destroyed.

A total of 42 spans on 3 lines were struck by trees.<sup>24</sup> This damage occurred in a situation where there were corridors around the lines, and the trees were compliant with the Trees Regulations. However, the leading edge of the forest was well within the fall distance. Further, hundreds of trees were left standing – damaged and vulnerable to high winds as they are no longer sheltered by the surrounding forest. The conductors on these lines were covered in bark, and in many instances large tree stems. It is surprising that at least 6 structures had not collapsed under the weight. It was incredibly lucky that the vegetation striking the line did not result in loss of supply to the region.

Transpower has engaged a forestry contractor to work full time to remove the remaining unsafe trees near our lines. To date, this work has taken two weeks, to a value of ~\$300,000. Final costs are yet to be tallied.

**Photos 3 and 4** below show one span through the forest, where a clean up has to occur.

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<sup>24</sup> Affected spans: BPE-WRK A 439-477 (39 spans), BPE-WKM 400-401, BPE-WKM 407-408, WRK-WKM 0006-0008.



*Photo 3: BPE-WRK A line, span 0454-455*



*Photo 4: BPE-WRK A line, span 0454-455*

### *Northland*

A number of trees also fell into the lines in Northland in January and February. While none of them resulted in supply issues, they did result in outages for some of the circuits that were hit.

A large tree fell on top of the 110kV Henderson-Maungatapere A line – holding the conductor (wires) to the ground. The line tripped out of service. Transpower's service providers were able to remove

the tree and carefully release the conductor back to air the following day, with the line returned to service. It was lucky there was no loss of electricity supply, or fire, as a result of this tree fall.



*Photo 5: Tree holding bottom phase of conductor on the ground*



*Photo 6: Tree being cut away*



*Photo 7: Minor conductor damage that had to be repaired*

A second tree hit the same line a day earlier – also resulting in the line tripping. Once the cyclone cleared, a helicopter patrol identified evidence that the trip was caused by a falling tree that clipped the conductor.



*Photo 8: evidence of several large trees that have fallen towards the line. Small pieces of debris hanging from the conductor*

#### *Arapuni-Edgcumbe line - Kinleith-Lichfield-Tarukenga 1 circuit*

Locating the source of some faults can result in significant time, effort and cost. The Kinleith-Lichfield-Tarukenga 1 circuit tripped on 13 February. No distance to fault information was available.

A line patrol was initiated, with ground crews starting at either end of the line. A helicopter patrol of the forestry sections was also undertaken. This helicopter patrol identified trees having been blown into a section of the line, in the span between Arapuni-Edgcumbe-A0123 and A0124 structures. The ground patrol was dispatched to the location and reported that the line had freed itself from the vegetation.

An attempt to re-liven the line was unsuccessful. Distance to fault information from the reclose attempt suggested the fault was between Tower A0666 and the Kinleith substation. This area was patrolled with nothing found, and a further reclose attempt was made which was also unsuccessful.

Due to worsening weather conditions it was decided to stand the patrols down and continue the following day.

On 14 February a tree branch was found on the red phase of Arapuni-Edgcumbe-A0236 and A0237 span. This was removed and the circuit was successfully returned to service about 6 hours after the tree was initially found.



*Photo 9: Image of the branch on the red phase of Arapuni-Edgcumbe-A0236 and A0237 span*

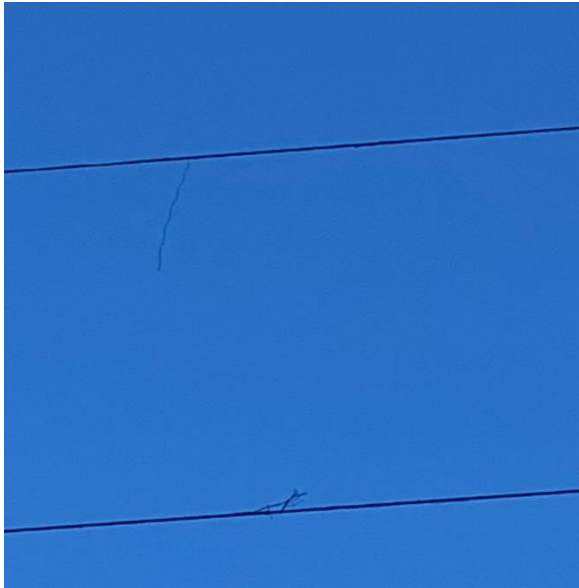
#### *Hawke's Bay*

Less damage was caused to lines due to tree fall in Hawke's Bay, as the wind was not as severe. However, tree fall damage did occur in a few forestry blocks.

Photo 10 shows a slip that resulted in tree fall into the Redclyffe-Tuai A line in the vicinity of tower 0086-0096. Photo 11 shows the resulting damage to the conductor. It is surprising that the conductor did not snap, given the damage that has occurred. We expect that our costs will be in the vicinity of \$150,000 to widen the forestry corridor, and replace the damaged conductor in this section of line.



*Photo 10: slip and tree fall in vicinity of RDF-TUI A line*



*Photo 11: damaged RDF-TUI A line as a result of treefall*

### **Other recent damage to lines due to tree strike**

In October 2022, a tree strike resulted in the conductor dropping on the Tuai-Bunnythorpe A line in span 0221-0222. The resulting damage cost ~\$120,000 plus ongoing corridor management costs. This damage is shown in **photos 12 and 13** below.



*Photo 10: TUI-BPE – mid-span looking back to tower 221*



*Photo 11: TUI-BPE A, tree fall span 0221-222*

#### *Abandoned pine forest*

In 2021-2023, Transpower have spent ~\$170,000 on resolving issues with an abandoned pine forest in the vicinity of the Bunnythorpe-Wilton A line, between span 0197-0198 (photo 12, below). This work involved consultation with the landowner, council and iwi, and ultimately felling of the fall distance trees. Costs would have been significantly more if the pine forest had been registered under the ETS.



*Photo 12: abandoned forest BPE-WIL A 0197-0198*

## **Appendix B: Competing regulation**

**ENABLING LEGISLATION/NATIONAL INSTRUMENTS**

**ELECTRICITY (HAZARDS FROM TREES) REGULATIONS 2003 – (TREE REGS)**

- Mandatory separation distances between trees and transmission lines

**NATIONAL ENVIRONMENTAL STANDARDS FOR ELECTRICITY TRANSMISSION ACTIVITIES (NESETA)**

- Provides a consenting pathway for vegetation trimming, felling and removal for existing (pre-Jan 2010) electricity transmission infrastructure.

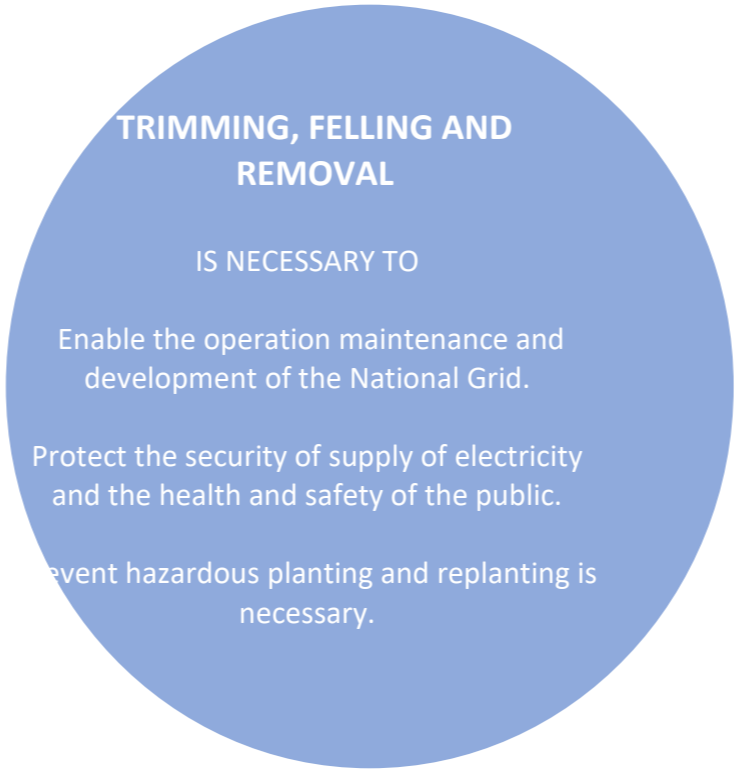
**NATIONAL POLICY STATEMENT ON ELECTRICITY TRANSMISSION (NPSET)**

- Objective  
Recognises the national significance of the electricity transmission network ... while:
  - Managing the adverse environmental effects of the network; and
  - Managing the adverse effects of other activities on the network.
- Key Policies

Policy 2: In achieving the purpose of the Act, decision-makers must recognise and provide for the effective operation, maintenance, upgrading and development of the electricity transmission network

Policy 5: When considering the environmental effects of transmission activities associated with transmission assets, decision-makers must enable the reasonable operational, maintenance and minor upgrade requirements of established electricity transmission assets

Policy 10: In achieving the purpose of the Act, decision-makers must to the extent reasonably possible manage activities to avoid reverse sensitivity effects on the electricity transmission network and to ensure the operation, maintenance, upgrading and development of the electricity transmission network is not compromised.



**COMPETING/CONFLICTING NATIONAL INSTRUMENTS – ‘STRICT AVOIDANCE’**

**PROPOSED NPS INDIGENOUS BIODIVERSITY**

- Takes a strict avoidance approach to effects on SNAs. There is an exception for use and development that addresses “a very high risk to public health and safety.” Transpower seeks to protect electricity supply and public health and safety by undertaking vegetation trimming/removal before a risk is “very high,” and to meet the Tree Regs.
- Clause 3.15 in relation to existing activities will be difficult to apply, given vegetation regrows. If clause 3.10 applies, functional need and lack of alternatives will need to be established, creating barriers to necessary trimming and removal.
- Relationship between the Proposed NPSIB and NPSET/NESETA unclear – assume NPSIB will add to consenting processes/burden.

**NPS-FRESHWATER MANAGEMENT AND NES FRESHWATER**

- NPSFM – Lack of provision for the operation, maintenance, development and upgrading of nationally significant infrastructure.
- NESFW – Potential duplication of controls on ‘vegetation destruction’ for existing transmission lines
- Relationship between the NPSFM/NESFW and NPSET/NESETA unclear – assume NPSFM/NESFW add to consenting processes/burden.

**CLIMATE CHANGE RESPONSE ACT (CCRA)**

- New carbon forests being established at pace, including in very close proximity to lines.
- Vegetation trimming, felling and removal of pre-1990 forest and post-1989 forest land can give rise to liabilities to surrender NZUs. This leads to reticence or refusal to clear around corridors.
- Best Practice Forest Management (BPFM) leading to deforestation for pre-1990 forest land is exempt from liability, but no definition of BPFM and s179A limits this exemption within tight area constraints and only the edge of the forest land.
- A s60 exemption could be used for pre-1990 forest land, but no certainty it will be granted. Currently no applicable exemptions or offset options for post-1989 forest land.
- Offsetting available for pre-1990 forest land to avoid liability, and is proposed in due course for some post-1989 forest land, but adds cost to forest land-owner and takes time meaning it won’t protect the security of electricity supply and the health and safety of the public.

**ISSUE**

- No regulation that requires the “right tree in the right place” – new trees are being planted that will be hazardous when fully grown.
- Tree Regulations require trimming, felling and removal. RMA requires consents for mandatory vegetation trimming and removal.
- Pre-Jan 2010 infrastructure relies on consents under NESETA.
- Post-Jan 2010 infrastructure relies on consents under District and Regional Plans.
- District and Regional Plans must give effect to NPSs.
- Not just about existing lines – the future of NZ’s electricity and safety of the public at issue.
- Conflicting national direction = uncertainty for parties implementing NPSs.
- Risks when decisions are made on an ad hoc basis by district and regional councils as to how to reconcile conflicting policy documents.
- Expensive and resource intensive to litigate.

**SOLUTION**

- Prevent trees being planted, and replanted, in proximity to lines (risk based assessment – based on mature height of tree/fall distance and proximity to conductor – amend:
  - NES Plantation Forestry and/or NPSET corridor protections and/or NESETA (under the RMA); and/or
  - Trees Regulations (under the Electricity Act); and/or
- National Planning Framework (under the Natural and Built Environment Act, if enacted).
- Strengthened Trees Regulations to address legacy trees.
- Clear National direction in Proposed NPSs about relationship with NPSET, NESETA and other legislation (eg Tree Regs) – trimming, felling and removal of trees posing risks to be permitted – it must occur.
- A s60 CCRA exemption to exempt necessary National-Grid related vegetation management from the deforestation activity giving rise to pre-1990 forest liability under CCRA.
- An exemption for deforestation of pre-1990 forest land or reductions in carbon stock of post-1989 forest land.