

## **SUBMISSION TO MBIE REGARDING REVIEW OF THE ELECTRICITY (HAZARDS FROM TREES) REGULATIONS 2003**

### **Reform of the Tree Hazard Regulations needed for infrastructure resilience and to protect consumers from power outages**

Entrust supports the Ministry of Business, Innovation and Enterprise (MBIE) review and overhaul of the Electricity (Hazards from Trees) Regulations (the Tree Hazard Regulations).

Reform of the Tree Hazard Regulations is critical for building infrastructure resilience and adapting to climate change.

While power outages are inevitable when the types of storms and cyclones the North Island experienced this year occur, there have been more outages than there should or needed to have been due to trees hitting power lines. Power outages are likely to increase as the number of extreme weather events increases.

#### **Summary of Entrust's submission**

- Entrust is concerned that trees damaging power lines is unsafe, and about the harm to households and businesses from power outages. Loss of power can be particularly problematic for households with young children, elderly, and people who are medically dependent on electricity or otherwise vulnerable.
- Being able to rely on the supply of electricity will become increasingly critical as New Zealand increases its reliance on electricity, e.g. for heating and transport, as part of its approach to adapting to climate change.
- Vector estimates that during an extreme weather event up to 70% of outages are caused by vegetation and, of these, approximately 80% are caused by issues with trees which aren't addressed by the current Tree Hazard Regulations.
- Based on Vector's experience, many of the trees that fall on power lines and cause outages are compliant with the distance that a tree's branches must be from lines under the current Tree Hazards Regulations. The current regulations do not account for the height and distance of trees which could fall on the lines during a storm.
- Power outages caused by trees and maintenance work required to manage trees, also adds substantial costs to the operation of electricity networks which are ultimately borne by consumers. Tree owners, including local councils, have a responsibility to maintain their assets and make sure they are safe.
- Entrust supports the recommendations made by Vector for reform of the Tree Hazard Regulations, such as increased buffer zones around lines and pre-emptive rules to ensure unsuitable trees are not planted near lines in the first place.<sup>1</sup> The draft proposals do not go far enough in protecting consumers.
- The review of the Tree Hazard Regulations should be completed at pace to ensure there isn't further delay in making long overdue changes to the Regulations. We support Vector's position that changes should be made within the next 6-months.

---

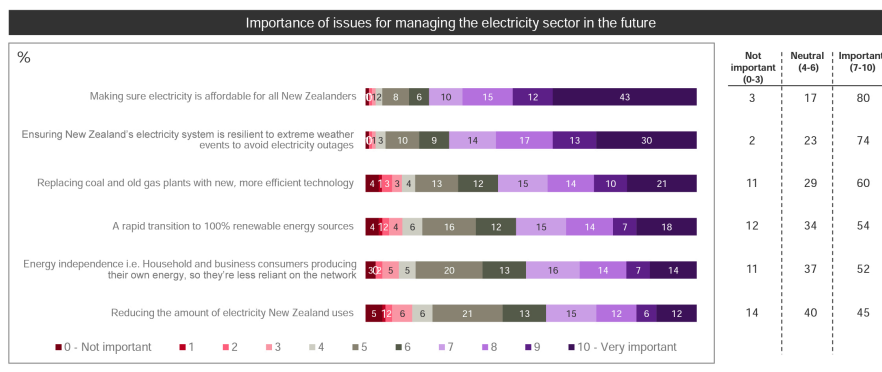
<sup>1</sup> Treescape has issues Guidelines as to what types of trees are suitable near power lines: <https://www.treescape.co.nz/wp-content/uploads/2020/02/Planting-guide.pdf>

## Entrust’s submission

### Electricity is an essential service for Kiwi households and businesses.

Reform of the Tree Hazard Regulations isn’t just about balancing the rights and responsibilities of “tree owners” and “works owners”, such as electricity line owners or operators, where trees and electricity lines share space. The review of the Tree Hazard Regulations needs to reflect that the supply of electricity is an essential service for Kiwi households and businesses.

The Consumer Advocacy Council recently released a residential consumer survey which showed that the key issues for Kiwi households are affordability (80%) followed closely by resilience to extreme weather events and outages (74%).<sup>2</sup>



KANTAR PUBLIC | Consumer Advocacy Council

Q22 Thinking about how the electricity sector is managed in the future, how important are the following issues to you?  
(Base: Total New Zealanders (n=1,026))

25

### Reform of the Tree Hazard Regulations is needed to improve network resilience and reduce outages

While power outages can’t be avoided when the types of storms and cyclones the North Island experienced this year occur, the extent of outages has been higher than they should have been due to trees hitting power lines.

The following images are of trees falling on and damaging power lines in Auckland during the February 2023 storm.



Titirangi

<sup>2</sup> Kantar Public, Electricity consumer sentiment survey residential consumers and small businesses 2022: baseline survey results, March 2023.



Browns Bay



Warkworth

This puts additional strain on the capacity of lines companies to repair damaged lines, and the speed at which power can be restored. Fallen trees also hinder crews from accessing and repairing equipment.

Analysis by Vector shows that, over the last six years, the impact of vegetation on System Average Interruption Duration Index (SAIDI) service quality is approximately 20% of total outages in years without extreme weather events, with this increasing to 40-50% of total outages in years with extreme weather events e.g. during the April 2018 storm and Cyclone Gabrielle.

The same analysis shows that vegetation related SAIDI increased tenfold in the years with extreme weather events.

SAIDI does not reflect the true impact of vegetation causing outages in extreme weather events as SAIDI only captures outages on the high voltage (HV) network and does not capture outages on the low voltage (LV). Damage to the LV network was a significant driver of protracted outages across the North Island during Cyclone Gabrielle.

Vector estimates that during an extreme weather event up to 70% of outages are caused by vegetation, and, of these, approximately 80% are caused by trees which are outside the scope of the Tree Hazard Regulations. We consider these adverse impacts on power supply illustrate very clearly how the current Tree Hazard Regulations are failing to adequately protect consumers.

### **The issues and concerns with the Tree Hazard Regulations are not new**

While the recent extreme weather events have brought the Tree Hazard Regulations back to the fore, the issues and concerns with the regulations are not new. The issues have been raised repeatedly following other storms.

For example, Entrust shares Vector's concerns, raised four years ago, that "a key source of the outages experienced in Auckland during the April 2018 storms, were trees falling

on Vector's network. Many of these trees were compliant with current regulation, which prescribes a 'cutting zone' - the distance that a tree's branches must be from the lines. Current regulation does not however account for the height and distance of trees which could fall on the lines during a storm (the 'fall zone') - many of which did".<sup>3</sup>

The issues with trees interfering with lines and the Tree Hazard Regulations have also been well telegraphed in Vector's and other line owners' Asset Management Plans.

### **Entrust supports the recommendations made by Vector for reform of the Tree Hazard Regulations**

We agree with Vector that the draft proposals do not go far enough in dealing with the risk of trees interfering with consumers or for protecting consumers from power outages. Overall, we consider that the reach of the Tree Hazard Regulations should be broadened so they capture a wider range of scenarios where trees could interfere with power lines, and the processes for dealing with trees that could interfere with power lines are simpler and more efficient.

Consistent with Vector's submission, our views on the reform of the Tree Hazard Regulations are that:

- The existing Growth Limit Zone (GLZ) should be widened to deal with: branches growing into lines, falling debris, and health and safety risk. In some cases, the current GLZ does not align with "minimum approach distances" (MAD) that workers must maintain from overhead lines for health and safety in some cases.<sup>4</sup>
- We support MBIE's proposal to introduce a new notice category which would allow works owners to issue notices for vegetation which has been determined as presenting risk (Option 4). We consider that this should be supported by reference to best practice risk-based guidance, which should also include preventive planting guidelines.

This would help ensure the regulations recognise hazards presented by most, if not all, modes of vegetation failure.

- The process requirements set out in the regulations should be streamlined and made more efficient. For example, we consider that the hazard warning notice should be eliminated, but a cut trim notice (CTN) should be retained to be issued when vegetation is encroaching the notice zone. This should include an appropriate distance from the expanded GLZ or risk assessment, recognising the growth that occurs during the notice period.

This would reduce the notices works owners need to send to tree owners, as well as clarifying the responsibilities for tree owners.

- A further area where the regulations create complexity and administrative burden is the distinction between first and subsequent cuts. The logic of the provision was to alleviate the cost to tree owners when the regulations were first introduced. We consider that the first cut provisions should now be removed from the regulations.
- The ability of tree owners to "declare no interest in trees" should be removed as historically this has been used as a way for tree owners to avoid responsibility for managing their trees.

---

<sup>3</sup> Vector, Electricity Price Review – Options Paper, 22 March 2019, available at:

<https://www.mbie.govt.nz/dmsdocument/4930-vector-submission-electricity-price-review-options-paper-pdf>.

<sup>4</sup> <https://www.worksafe.govt.nz/topic-and-industry/electricity/working-near-low-voltage-overhead-electric-lines/>, Table 6.



- Works owners should have the right to enter a property for the purpose of vegetation management provided reasonable endeavours have been made to contact the owner or occupier.

### **Vector is making changes to improve the resilience of its network**

Vector has made changes to improve the ability of its network to withstand changes in climate patterns and to continue operations and deliver on customer expectations. These types of changes can only go so far in protecting against external factors Vector doesn't have control over such as trees interfering with lines.

Some examples of Vector initiatives to improve network robustness include:<sup>5</sup>

- Pioneering a risk-based approach to vegetation management, independent scoping of high-risk vegetation sections and collaboration with the Auckland Council to improve the management of council trees in the proximity of powerlines.

The risk-based approach to vegetation management incorporates the following core components:

- a) Regular inspections and assessment – routine inspections of the network, undertaken by Arborlab Ltd, are used to identify and record vegetation encroachment as well as catalogue high risk trees. This data is loaded into a programme called FULCRUM that allows for the tracking and monitoring of potential vegetation risk. These activities are identified as Lead Indicators.
  - b) Administration and prioritisation of work packs – this activity consolidates vegetation work into 90-day work pack prioritised by risk as well as the administration of the necessary notifications specified in the Tree Regulations.
  - c) Delivery of vegetation works – activities focused on the delivery of the vegetation management works focus around the 90-day work plans
  - d) Lag Indicators – activities focussed around post network events where vegetation has caused outages and/or damage to network infrastructure.
- Trialling of new inspection technologies like drones, to capture high resolution pole-top and conductor span asset condition information, including vegetation encroachment, and Light Detection and Ranging (LiDar) based inspections to improve our understanding of growth rates in specific locations to be able to better forecast potential vegetation intrusions.
  - Hardening the network by selective replacement of bare overhead conductor with aerial bundled (low voltage) and covered conductor (high voltage) to improve the susceptibility of the lines to vegetation during high wind conditions.
  - Increased level of network automation to sectionalise our network and minimise the impact to customers of overhead network events, for example caused by vegetation.
  - Dedicated asset hardening and replacement programme to install composite crossarms and insulators with greater strength, impulse withstand, and asset lifecycle.
  - Undergrounding of critical overhead network sections (distribution and sub transmission).

---

<sup>5</sup> See, for example, Vector, 2021–2031 electricity asset management plan, available at: [https://blob-static.vector.co.nz/blob/vector/media/vector2021/vec224-amp-2021-3031\\_310321.pdf](https://blob-static.vector.co.nz/blob/vector/media/vector2021/vec224-amp-2021-3031_310321.pdf).

- Deploying Microgrids to support local communities during weather related outages. Microgrids incorporate battery energy storage systems (BESS) and/or standby generation.
- Partnering with global companies like IBM to develop weather and outage modelling tools to enhance operational response using advanced and predictive analysis.

### **Concluding remarks**

Entrust wants to ensure the interests of consumers are protected, including the 351,000 households and businesses in central, east and south Auckland that are beneficiaries of Entrust.

There are currently more power outages than there need to be caused by issues with trees interfering with power lines. Overhaul of the regulations is needed to ensure they are fit-for-purpose and protect against unnecessary safety hazards and power outages caused by trees damaging power lines.

Kind Regards,



Alastair Bell  
**Chair of Regulation and Policy Committee**