Meeting Date: 24 October 2019

Review of Electricity (Hazards from Trees) Regulations

Security and Reliability Council

This paper provides background for a presentation from the Ministry of Business, Innovation and Employment on its planned review of the Electricity (Hazards From Trees) Regulations 2003. These regulations set obligations with respect to trimming trees near power lines and this has a direct impact on reliability of electricity supply.

Note: This paper has been prepared for the purpose of the Security and Reliability Council (SRC). Content should not be interpreted as representing the views or policy of the Electricity Authority.

1. Purpose

1.1. Since 2015, the Ministry of Business, Innovation and Employment (MBIE) have planned to complete a review the Electricity (Hazards From Trees) Regulations 2003 ('Tree Regulations') sometime during 2017-19. This review has made it on to MBIE's work plan for this year and they anticipate consulting with stakeholders in late 2019.

1.2. The Tree Regulations are important to electricity reliability as they govern the obligations of parties with respect to trimming trees near power lines. Vector Limited's 2018 asset management plan notes that:

> "Vegetation faults contribute 15% of distribution feeders [system average interruption duration index] and are caused by trees or debris contacting Vector's network.…Analysis has shown that the majority of trees causing events are outside of the growth limit zone as defined by the tree regulations, and can cause up to 70% of all events during periods of high winds."[1]

1.3. A representative from MBIE will attend the 24 October 2019 SRC meeting to present information about the planned review and answer questions.

2. MBIE's review and the SRC's role

2.1 MBIE anticipate describing the following matters for the SRC:

a) an overview of the review

b) the review process

c) the decision-making framework

d) key issues to be explored by the review

e) next steps.

2.2 Some of the issues to be explored by the review will relate to matters outside of the SRC's mandate. While reliability of electricity supply is in scope and relevant to the SRC, the review will need to balance competing priorities like private property rights, carbon emission goals, the visual amenity value of trees and the role of trees in eco-systems.

2.3 Accordingly, the SRC need not form any views on the relative value of such competing priorities. However, the SRC may be able add value by:

a) assess whether MBIE's decision making framework is likely to appropriately value electricity reliability

b) identifying whether there are data sources or stakeholders that MBIE should seek out during its review process.[2]

2.4 The Tree Regulations is significant for electricity reliability and warrants a good level of awareness with the SRC.

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1 Page 36 of Vector's 2018 asset management plan (Link).

2 MBIE are aware of the report that the Electricity Networks' Association commissioned Opus to complete (Link).

The Electricity Networks' Association has serious concerns with the Tree Regulations

2.5 An 18 April 2018 article by the Electricity Networks' Association provides a useful summary of its concerns with the Tree Regulations.[3] The SRC's secretariat recently confirmed with Electricity Networks' Association staff that article is still representative. The following is an excerpt from that article:

> "An [Electricity Networks' Association] survey of its members found that 60 to 70 percent of outages in storms were due to trees. And the frequency of significant storms appears to be increasing.…While we can never prevent trees from hitting lines, a lot can be done to reduce the incidence of it occurring.
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> The tree regulations are highly prescriptive and transactional. Prescriptive because the regulations focus on set distances between trees and lines. The distances are meant to protect the security of supply and the safety of the public.
>
> Transactional because they take account of only two parties – the lines company and the tree 'owner' – who must follow a process involving measurement of distances, various zones, issuance of formal 'cut and trim' notices for every tree, and punitive actions. Failure to obey a cut and trim notice could result in a $10,000 fine, but there is no record of a fine ever being imposed.
>
> The set distances proscribed in the regulations [vary] depending on the voltage of the line. For the standard 240-volt line running along city streets, trees and other vegetation are permitted to grow to within half a metre of a power line, before being required through a bureaucratic process to be trimmed back to one-and-a-half metres.
>
> For the vast majority of trees, these distances are inadequate. For example, no action can be taken until a tree is as close as half a metre from a line. This is a very small gap and clearly insufficient to prevent trees swaying in high winds to clash with lines.
>
> Some trees are very fast growing. They might require two trims in a season. Fast growing trees tend to be less resilient to high winds.
>
> Another problem with the tree regulations is identifying the 'tree owner', which can be different to the land owner or occupier. In the case of forestry, the tree owner might be a post office box in Geneva. Communication could take months. Meanwhile, the trees keep growing.
>
> Even after a tree is cut, a problem persists. While a newly-pruned tree might be physically separated by up to 1.5 metres from a line, the tree might tower many metres directly above a line, meaning branches can fall across conductors, shorting them out or bringing them down.
>
> What's more important is that a tree is separated by its 'fall' distance – the horizontal distance a tree will reach if it breaks at the base. But a fall-

[3] https://www.ena.org.nz/news-and-events/news/why-the-tree-regulations-arent-working/

distance separation is needed only if the tree is likely to fall over. Some are, some aren't.

The [Electricity Networks' Association] wants to move from anachronistic prescriptive regulations to modern principles-based regulations which allow lines companies to carry out and act on risk assessments on trees near power lines. A risk assessment would look at the attributes of individual or belts of trees, the immediate environment, and the risk to the electricity system.

The risk assessment should include factors such as:

- Customer numbers that might be affected by an outage
- Tree species (eg, slow or fast growing, exotic or native, propensity for breakage)
- Age and condition of tree (eg, damaged or diseased)
- The extent to which the tree is exposed to severe weather
- Overhanging branches and fall distance
- Areas where public safety is very important (eg. supplying hospitals, emergency services, essential infrastructure, schools, traffic lights)
- Importance of line (eg, medium voltage sub-transmission line supplying many low-voltage lines)
- Areas with known hazard or fall zone trees, high volumes of trees, or sections expensive to repair
- Cost of treatment per tree site, or span, or kilometre of line
- Forestry areas
- Risk of fire
- Land stability or land access issues
- Available budget."

2.6 The Electricity Networks' Association has also published *A Risk-Based Vegetation Management Guide* for electricity distributors.[4]

3. Questions for the SRC to consider

3.1 The SRC may wish to consider the following questions.

Q1. What further information, if any, does the SRC wish to have provided to it by the secretariat?

Q2. What advice, if any, does the SRC wish to provide to the Authority? Of that advice, which elements should be

[4] Available from https://www.ena.org.nz/dmsdocument/281