RMA Roadblock Case Studies

Supplementary Evidence to the Environment Committee
Natural and Built Environments Bill Exposure Draft

August 2021

1. Overview

This document provides an overview of examples and case studies referred in Vector Limited's (Vector) presentation to the Environment Committee on the Natural and Built Environments Bill (NBEA) Exposure Draft on Thursday 19th August, requested by the Committee as follow up.

This includes case studies for projects in which Vector has obtained resource consent and scenarios in which consent would be required by the Auckland Unitary Plan Operative in Part (AUP(OP)). We have identified these case studies as examples of instances where the planning system could be improved to increase the efficient provision of electricity infrastructure and thereby support decarbonisation.

As noted in Vector's presentation to the Committee, Two elements in the NBEA framework will be crucial to maintaining efficient distribution network operation as part of the wider electricity system:

Nationally consistent approach to planning provisions related to electricity distribution:

Vector strongly supports the preparation and implementation of a National Environmental Standard for Electricity Distribution.

Affordability is essential to the transformation expected over the next few years in electrification and decarbonisation of New Zealand's economy. The cost to build, maintain and repair the distribution network is borne by consumers in their electricity prices (with distribution making up around 25% percent of a consumers' electricity bill)[1]. Meeting the demands of accelerated electrification – the impact of which will be concentrated on our electricity distribution network – will require network growth, upgrade and change. The more efficiently this can be done, the better the outcome for consumers and our decarbonisation pathway which relies on affordable electrification.

For Vector, our highest uncertainty and regulatory risk in relation to new network developments or upgrades is experienced at the unitary plan level, where local government has considerable influence on the establishment and interpretation of rules and standards by Council Officers which may change over time. While the AUP(OP) brought more certainty and consistency to the infrastructure provisions, there are still issues with inconsistent provisions, a lack of flexibility (for example a reliance on rigid dimension limits rather than thresholds) and limits on plan agility (for example, arduous plan change processes being necessary to make even relatively minor changes to the AUP(OP) that may be necessary to, for example, keep pace with technology changes). These issues are embedded in the system and result in many activities requiring resource consent due to technicalities rather than demonstrable adverse effects that legitimately require consideration and management. The majority of Vector's resource consents are issued with few conditions, which both illustrates that our activities have minimal effects and that there are very few possible or necessary mitigation measures given the nature of the equipment that is required. We consider that there is an opportunity through the current reform process to reduce this unnecessary cost for existing distribution networks. Moreover, to cater for the necessary and expected areas of

[1] https://www.ena.org.nz/news-and-events/news/

future growth – such as our emerging solar market – Vector sees a clear need to avoid unnecessary ongoing obstruction.

Much like the National Environmental Standards for Telecommunications Facilities 2016 (NESTF) and the National Environmental Standards for Electricity Transmission Activities 2009 (NESETA), a national, consistent, permitted activity and standards approach is required for both electricity distribution networks and distributed renewable generation – such as solar. This would ensure a nationally consistent set of rules are developed that are less open to interpretation by Council Officers on a case by case basis which can result in unintended consequences on the operation, maintenance, and repair of the network.

This approach can and should be addressed in the National Planning Framework (NPF) established via the NBEA. However, the preparation and implementation of the NPF is likely to take many years. Vector considers that there is therefore a strong case for the development of an interim National Environment Standard under the RMA, as it stands. That National Environment Standard could then be incorporated into the NPF and provide for consistency between planning approaches for electricity distribution under the RMA and the successor legislation.

Many of the examples below illustrate the merits of such a nationally consistent, standard based permissive planning framework that provides flexibility to support existing and future electricity distribution requirements.

2. Case Study - Electricity Code of Practice 34 (ECP34) – Safe distances from lines

As the distribution network operator in our largest urban area, Vector has had somewhat of a head-start on the rest of New Zealand electricity distribution businesses in experiencing the effects of encroachment by new, higher density development on existing overhead electricity line assets. Urban form has changed dramatically from low-density quarter acre sections, with deep setbacks between buildings and boundaries, to high density commercial and residential developments with shallow or no setbacks from boundaries (including front boundaries).

What this means in Auckland is that existing overhead lines – typically located in the berm – are often located dangerously close to new buildings. Often Vector is only able to identify this as an issue when scaffolding is erected near electricity lines, or post construction of the building.

While there are protections built onto the AUP(OP) to prevent encroachment onto Transpower's assets within the national grid corridor overlay (as required by the National Policy Statement on Electricity Transmission), there is no similar standard at this stage that provides encroachment protection for Vector's overhead lines.

The photo below shows examples of recent encroachments:

Once identified, the process to resolve this encroachment is protracted and costly. The developer is responsible to pay for undergrounding or an alternative, but achieving a safe resolution is challenging. The increased density provided for by the National Policy Statement on Urban Development 2020 is likely to increase the potential for this type of conflict in Auckland and other urban centres. A national standard that helps to avoid clashes with existing and future infrastructure is needed to ensure that the issue can be identified prior to construction starting. Preventing issues before they arise will support a more efficient development process, avoid costs that ultimately are passed on to building purchases, avoid risks to the electricity systems and avoid health and safety issues.

3. Case Study - Visual amenity

While the AUP(OP) has been an improvement on Auckland's legacy district plans from an electricity infrastructure provision perspective, many permitted standards affecting infrastructure are linked to visual amenity e.g. dimensions and restrictions on new and replacement overhead equipment and lines. The setting of strict and overly conservative rules does not reflect the varied road reserve environment which most assets are located within and physical constraints Vector needs to take into account. This results in the requirement for numerous resource consents each year with no environmental benefits being achieved through this process.

This is evident in the following examples where consents were required for upgrades that have compelling safety or security of supply reasons and little, if any, adverse effects on the environment.

St Aubyn Street, Devonport - Pole and pole-mounted transformer replacement

Heritage areas such as Devonport are characterised by narrow road corridors and little room for new or upgraded equipment at ground level.

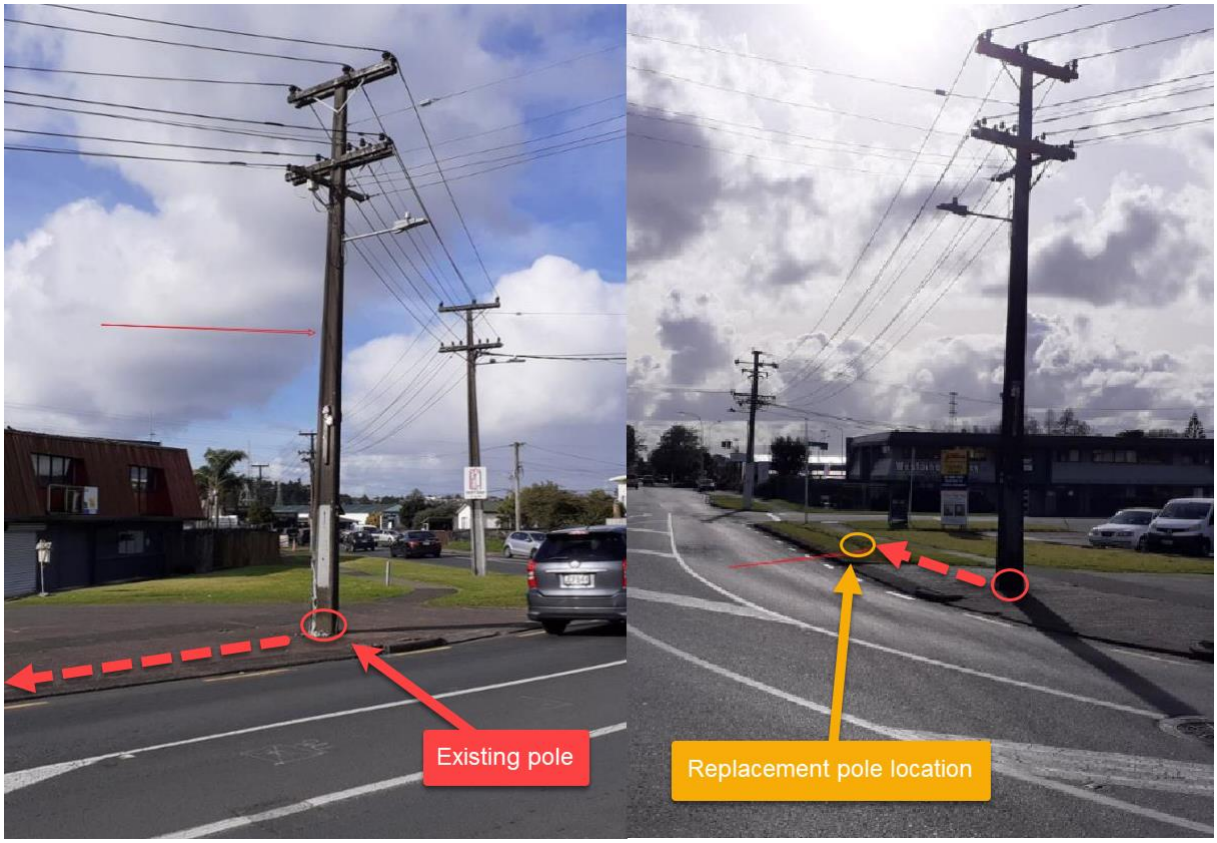
Vector recently had to replace an old pole mounted transformer (on an h-structure) with a new pole and pole mounted transformer which visually was a significant improvement. However, under the AUPOP an overlying height sensitive overlay triggered a notified resource consent application as the new pole was greater than 10% higher than the existing pole (by 390mm) and the pole diameter was 20% larger. This larger pole was required for structural reasons. Consent was granted but there were significant time delays with the consenting process (due to the notification requirement) and additional costs incurred in the notification process.

The upgrade resulted in network improvements but also a significant improvement on the streetscape of the area. Despite these benefits, the application was also required to be publicly notified, adding several thousand dollars in cost, delays of several weeks and inefficiencies associated with the scheduling of network outages to complete the work.

Pole-mounted transformers even require resource consent in established light industrial and general urban areas with existing overhead networks where there are no character overlays. Vector has not been refused consent for any of these installations under the AUP(OP), indicating that the adverse amenity effects of these types of changes are negligible. Yet, cumulatively, considerable cost and time is spent in unnecessary consenting processes.

Binsted Street, New Lynn – Pole relocation

Vector recently was required to obtain resource consent for a pole relocation on Binsted Road, New Lynn. Binsted Road is a semi-industrial area and the poles are located adjacent to the Business – Light Industry Zone. This relocation was necessary to improve vehicle safety for two existing driveways. Under the AUP(OP), a pole can be relocated up to 5m from its original location for traffic safety reasons, however in this case the relocation to the nearest grass berm exceeded the permitted 5m by 85cm due to the width of the driveway and therefore resource consent was required. So far as Vector is aware, there is no effect-based justification for a 5m relocation threshold, and certainly not in every case. However, the requirement for consent resulting in additional cost and delay to the safety improvements that the relocation enabled.



Many pole relocations are undertaken in order to account for safety, road widening, or site development reasons. Greater flexibility is required to account for functional alterations to the network that have minor or less than minor adverse environmental effects.

Hyde Road, Rothesay Bay – Pole relocation for new driveway and vehicle crossing

Consent was recently obtained to relocate a pole to accommodate the redevelopment of a site. A new driveway and crossing to Hyde Road were proposed in the location of an existing power pole as the result of increased intensity afforded under the AUP(OP).

As the relocation of the pole was not required to resolve a traffic safety issue, the permitted standards only allowed a relocation distance of 2m. However, had the pole were to be left in place until the driveway was built, then it would have become a permitted activity to relocate the pole up to 5m. For obvious engineering reasons, the pole could not be left in place till the new driveway is built, and a consent was required.

In this instance, the developer was required to obtain consent to relocate the pole 6.5m to the west (and within the grass berm) to keep it out of the new driveway This resulted in additional cost to the developer and delay to the development which ultimately will be reflected in the cost of the resulting housing development.

Because electricity distribution networks are intertwined with the urban fabric, our assets are influenced to a large degree by the development happening around them. This not only increases the amount of equipment required to increase capacity, but also affects the location and

appearance of existing assets that need to be relocated to account for change in urban form – primarily driven by residential development.

A national and standardised approach to electricity distribution (for example in the form of a National Environmental Standard and/or provisions in the NPF) would provide necessary flexibility in the way electricity distribution companies like Vector respond to changes around the network, freeing up resources to work on critical network development and reducing the resourcing burdens currently being experienced by councils where processing capacity is being stretched. As consent costs are reclaimed from customers, this would also play a part in lowering the cost of development for new housing.

4. Case Study - Need for plan flexibility and agility to account for technology or equipment changes:

The AUP(OP) was notified in 2013. Many of the dimensional standards were established to meet the requirements of equipment at the time, but do not account for technological change or function-driven alteration to form – e.g. taller or wider equipment than the standards allow.

Berm Battery Project

Vector's berm battery example included a new battery storage solution located in the road reserve to help balance load. The importance of such solutions will increase, in order to:

- ensure continued system stability as networks manage more complexity through the integration of distributed assets (including EVs and distributed solar systems), and as our system relies more on intermittent sources of renewable generation; and,
- to spread load, increasing utilisation of existing network capacity, deferring or avoiding network upgrades as demand for electricity increases.

Dispatchable storage can play a key role in network strategies to shed load as required in a grid emergency, without consumer outages.

The berm battery system has a height of 2.2m (designed around the necessary height of the inverters). This marginally exceeds the AUP(OP)'s height limit for assets located in the berm (1.8m – which was based on the size of traditional assets, with transformers being 1.5m high), and intermittently slightly exceeds the AUP(OP)'s permitted noise thresholds.

The effect of these exceedances is that each berm battery system installation would have required a resource consent application.

Vector trialled an alternative bespoke solution by grouping together inverters used for solar installations to overcome these restrictions. This alternative however was cost prohibitive. Consequently, the potential of this project was lost due to the costs and processes issues triggered by resource consent requirements, which were based on standards and thresholds that were based on traditional equipment and inflexible despite technology advancements.

The actual effects of the non-compliance of the height and noise standards, like most of Vector's resource consent applications, would have been negligible, but no option exists within the RMA framework beyond obtaining consent or amending the plan via private plan change. Vector sees considerable potential in increased plan agility to respond to technology changes (without arduous plan change processes) for relatively minor changes that enable the deployment of efficient technology solutions to meet future anticipated electricity demand.

Rooftop Solar Panel Restrictions

Another area where the actual effects of non-compliance are negligible – but where restrictions could adversely affect the efficient uptake of future decarbonisation technologies – is the restriction on the height of rooftop solar panels. For example, the AUP(OP) only enables rooftop solar panels as a permitted activity where they are less than 250mm above the roof surface. Any exceedance of this rather limited threshold will trigger the requirement to seek resource consent. However, given many roofs are not oriented to the sun, this limit prevents many solar panels being installed with an optimised tile to capture the sun and secure maximum performance of solar system. However, the cost and delay resulting from the resource consent application process may be sufficient to result in installation of rooftop solar panels that are less efficient

Large Scale Solar Farms

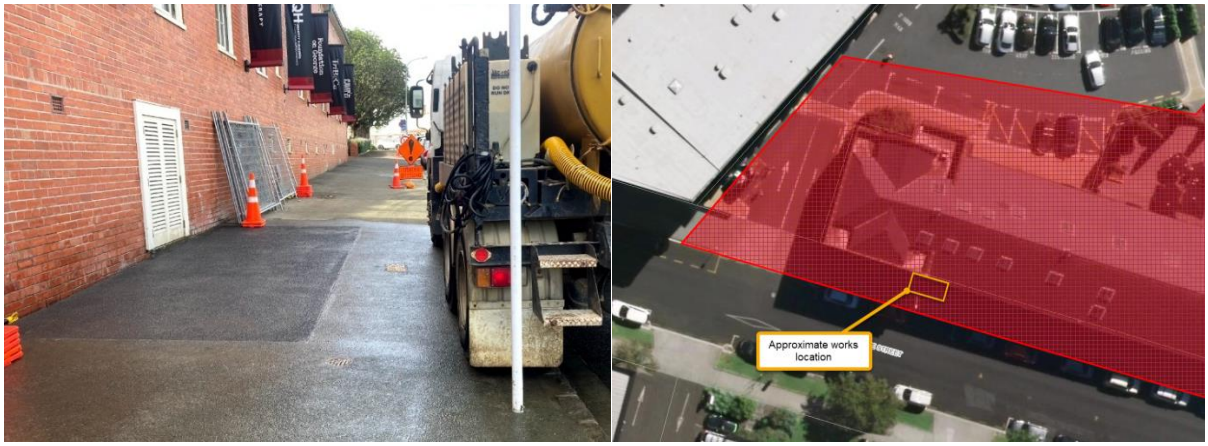
Whilst in its early stages it is also important that the market for larger scale solar farms is not constrained by similar unnecessary consenting requirements which may have minimal impact (particularly given the minimal effects on the environment in light the unobtrusive and removable nature of most solar farm structures) but add additional cost. Reducing the consenting burden for larger scale solar is important so as to not unnecessarily constrain low impact renewable generation options.

George Street, Parnell – Historic heritage overlay requiring resource consent for associated earthworks in the footpath

Unintentionally inconsistent plan provisions can also undermine efficient consenting of electricity distribution infrastructure. Vector has experienced the adverse effects of AUP(OP) standards that permit an activity (e.g. minor infrastructure upgrading inside a heritage listed building) being undermined by inconsistent standards that are, in practice, impossible to comply with (e.g. no earthworks permitted within 20m of a heritage building that is located within a heritage overlay "extent of place" - see red hatched area in the below image). These inconsistent provisions only became apparent once the AUP(OP) became operative and the standards were applied in practice. However, by that stage the process to rectify the issue involved a complex, costly and time consuming private plan change process.

In the example below, in order to replace the transformer inside a heritage building, minor earthworks were required in the footpath to joint cables for the new equipment. The upgrade activity inside the building was permitted under the AUP(OP) but, despite the non-existence of any

archaeological features, any earthworks within 20m of the heritage listed building require resource consent.



The works included a full structural engineering methodology and advice from a qualified heritage specialist and were low risk, but still required resource consent. Notably, the standards include exemptions for earthworks required for Auckland Transport to construct a bridge or tunnel, but not for other utility providers of critical infrastructure. It is unclear why the AUP had adopted a different level of standards in a range of rules between road network activities and other network utilities operating in the road reserve.

This work could have easily been undertaken in accordance with appropriate standards without requiring consent. Records were kept throughout the works and they were completed without damaging the building. The exemptions for more significant works for transport operations also indicate that this misalignment of standards does not take into account the functional requirements of the distribution network, nor account for actual adverse effects in doing so.

5. Case Study - Noise Standards

Like the telecommunications industry, the electricity distribution sector uses similar equipment nationwide with similar appearance and noise effects. The NESTF includes nationally standardised provisions for noise. Vector considers that a similar approach should be adopted for electricity distribution equipment.

The berm battery project (see above) stalled in part because the batteries intermittently exceeded the noise standard thresholds of the AUP(OP). The AUP(OP) noise limits were designed around traditional assets and did not reflect current technologies – nor did they provide adequate scope for flexibility to accommodate new solutions. These constraints are not site-specific, and a site specific or district-specific approach is not justified. Vector considers that the noise from a battery in an Auckland industrial area can and should be treated consistently via national standards to the noise from a battery in a Christchurch industrial area.

The only options available to Vector to enable battery equipment is to either apply for a specific private plan change to increase prescribed limits in the AUP(OP) or apply for individual resource

consents for each installation. Neither option is desirable or helpful to efficiently meeting Auckland's growing electrification demands and New Zealand's decarbonisation strategy.

Overall, we perceive there to be considerable opportunity to overcome consenting requirements for activities which are necessary for affordable and accelerated electrification by recognising distribution and distributed generation activity as permitted via a national standardised approach for distribution and distributed generation. This approach should include an interim National Environment Standard under the RMA which is then included within the NPF under the NBEA.