



Proposed Plan Change 78 (PC78)

to the Auckland Unitary Plan (Operative in part)

SECTION 32 and sec77K / sec 77Q alternative process for existing qualifying matters

EVALUATION REPORT – NATIONAL GRID CORRIDOR OVERLAY in accordance with sections 771(b)/770(b) and 770(b)/770(e)

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Executive Summary

This draft report discusses the implications of applying D26. National Grid Corridor Overlay, in the Auckland Unitary Plan (Operative in Part)(AUP), as a qualifying matter to the medium density residential standards (MDRS) of Schedule 3A of the Resource Management Act 1991 (RMA). And the implementation of Policy 3 of the National Policy Statement on Urban Development 2020 – updated 2022 (NPS-UD).

Introduction

This draft report is prepared as part of the evaluation required by Section 32 and Sections 77K and 77Q of the Resource Management Act 1991 ('the Act') for proposed Plan Change 78 (PC78) to the Auckland Unitary Plan (Operative in Part) (AUP).

The background to and objectives of PC78 are discussed in the overview report, as is the purpose and required content of section 32 and 77K / 77Q evaluations.

This draft report discusses the implications of applying the National Grid Corridor Overlay as a qualifying matter to the medium density residential standards (MDRS) of Schedule 3A of the RMA and the implementation of policy 3 of the NPS-UD

An existing qualifying matter is a qualifying matter referred to in section 77 I or 77O (a) to (i) that is operative in the relevant district plan when the IPI is notified.

- Sec 77I relates to relevant residential zones.
- Sec 77O relates to urban non-residential zones.

The Council may make the MDRS and the relevant building height or density requirements under policy 3 less enabling of development in relation to an area within a relevant residential zone or urban non-residential zone only to the extent necessary to accommodate 1 or more of the qualifying matters listed in 77I or 77O.

Integrated evaluation for existing qualifying matters

For the purposes of plan change 78, evaluation of the National Grid Corridor Overlay as an existing qualifying matter has been undertaken in an integrated way that combines sec 32 and 77K / 77Q requirements. The draft report follows the evaluation approach described in the table below.

Preparation of this draft report has involved the following:

- a review of AUP process including Independent Hearing Panel hearing evidence and recommendations:
 - Topic 012 Infrastructure, energy and transport
 - Topic 042 Infrastructure
 - Topic 064 Subdivision - urban
- consultation with Transpower Limited
- a review of D26 National Grid Overlay provisions in the AUP
- development of draft amendments to the operative district plan provisions of the AUP to implement this matter in accordance with ss 77I(b) and (e) and ss77O(b) and (e)
- review of the AUP to identify all relevant provisions that require a consequential amendment to integrate the application of this qualifying matter
- review of the AUP Maps to assess the spatial application of this qualifying matter
- section 32 options analysis for this qualifying matter and related amendments.

The scale and significance of the issues is assessed to be medium. However, this is dependent on which part of the National Grid Corridor Overlay affects the properties subject to the provisions of the overlay.

This draft section 32 and 77K/77Q evaluation report will continue to be refined in response to any consultation feedback provided to the council, and in response to any new information received.

Table 1 Integrated approach

Standard sec 32 steps	Plus sec 77K / 77Q steps for existing qualifying matter
<p>Issue</p> <p>Define the problem- provide overview/summary providing an analysis of the qualifying matter</p>	<p>Sec 77K or 77Q (1) (a)</p> <p>Describe the qualifying matter.</p> <p>Identify by location (for example, by mapping) where an existing qualifying matter applies</p>
<p>Identify and discuss objectives / outcomes</p>	<p>Sec 77K or 77Q(1) (c)</p> <p>Identify relevant RPS objectives and policies. Describe why the Council considers that 1 or more existing qualifying matters apply to these areas and why the qualifying matter is necessary.</p>
<p>Identify and screen response options</p>	<p>Sec 77k or 77Q (1) (b)</p> <p>Consider a range of alternative density standards for those areas having considered the particular MDRS standards and/or Policy 3 intensification requirements</p>
<p>Collect information on the selected option(s)</p>	<p>Sec 77K or Q (1) (d)</p> <p>Describe in general terms for a typical site the level of development that would be prevented by accommodating the qualifying matter, in comparison with the level of development that would have been permitted by the MDRS and policy 3 having regard to the modified zone, with regard to the identified density options</p>
<p>Evaluate option(s) - environmental, social, economic, cultural benefits and costs</p>	<p>Sec 77K or Q (1) (b)</p> <p>Provide a general assessment of the benefits and costs of the options in the light of the new objectives introduced by the NPS-UD and MDRS relating to well-functioning urban environments</p>
<p>Overall judgement as to the better option (taking into account risks of acting or not acting)</p>	<p>Conclusion as to the implications of the qualifying matter for development capacity to be enabled by NPS-UD/MDRS in the areas where the qualifying matter applies</p>

Issues

The qualifying matter being evaluated is the National Grid Overlay under the following sections of the RMA:

Residential zones:

- 77I(b) – a matter required to give effect to a national policy statement (National Policy Statement on Electricity Transmission).
- 77I(e) - The National Grid electricity transmission network is also identified in Section 1.4 Interpretation of the NPS-UD as being ‘nationally significant infrastructure’ which is a qualifying matter required for the purpose of ensuring the safe and efficient operation of nationally significant infrastructure.
- 77K - the National Grid Corridor Overlay is an existing qualifying matter in the district plan section of the Auckland Unitary Plan (Operative in Part). Therefore, Section 77K alternative process for existing qualifying matters is appropriate for the Section 32 assessment.

Non-residential zones:

- 77O(b) – a matter required to give effect to a national policy statement (National Policy Statement on Electricity Transmission).
- 77O(e) - the National Grid electricity transmission network is also identified in the definition of ‘nationally significant infrastructure’ which is a qualifying matter required for the purpose of ensuring the safe and efficient operation of nationally significant infrastructure.
- 77Q - The National Grid Corridor Overlay is an existing qualifying matter in the district plan section of the Auckland Unitary Plan (Operative in Part). Therefore Section 77Q alternative process for existing qualifying matters is appropriate for the Section 32 assessment.

Overview of the qualifying matter

Auckland Council is required to recognise and provide for the national significance of the National Grid in accordance with the National Policy Statement on Electricity Transmission 2008 (NPSET). This includes the identification and provision of a buffer corridor and associated rules to avoid activities sensitive to the National Grid in the corridor and manage the actual and potential adverse effects of other activities on the National Grid.

The purpose of the National Grid Corridor Overlay is to manage activities sensitive to the National Grid and potentially incompatible development, including land disturbance, within close proximity to the National Grid in order to:

- prevent risks to people and property
- protect the National Grid
- preserve line access for inspection and maintenance
- preserve a corridor for the operation, maintenance, upgrade and development of National Grid infrastructure
- manage potential reverse sensitivity effects.

Subdivision is managed so that future development achieves the objectives and policies of the National Grid Overlay. This includes that the National Grid is not compromised and its long-term upgrading and development is facilitated in accordance with the NPSET.

High voltage transmission lines pose a risk of electrical hazard in situations where development occurs too close and may result in injury to persons and/or damage to property, either as a result of direct or indirect contact with National Grid infrastructure.

Conversely, development in close proximity to the National Grid can pose risks to the National Grid itself including the potential for loss of security of supply through outages or physical damage, and through constraints on access for inspection and maintenance and undertaking line upgrades.

The National Grid Corridor is mapped in the AUP and consist of three parts:

- National Grid Yard – is the area:
 - within 12 metres of the centreline of the 110kV National Grid transmission lines
 - within 12 metres of the centreline of the 220kV National Grid transmission lines
 - within 12 metres of the foundation of associated support structures.

The areas within the National Grid Yard (Compromised and Uncompromised) are shown on the planning maps. The National Grid Yard (Uncompromised) areas are not generally compromised by the presence of existing buildings and are subject to limitations on new development. The National Grid Yard (Compromised) areas are generally compromised by the presence of existing buildings and are subject to fewer limitations than the National Grid Yard (Uncompromised). All parts of the National Grid Yard are subject to limitations on new activities sensitive to the National Grid.

- National Grid Subdivision Corridor – is the area beyond the National Grid Yard that might fall under the maximum swing for the National Grid transmission line conductors in high winds. The distance varies depending on the voltage of the transmission line and other specific characteristics which influence the maximum swing of each span.
- National Grid Substation Corridor – is the area measured 12m from the boundary of National Grid substations as identified in the AUP maps.

Location of qualifying matter

Transpower Limited (Transpower) owns and operates an extensive network of National Grid assets within the Auckland region. Transpower has provided a map of its assets (refer to Attachment 1).

In general, the National Grid Corridor Overlay aligns with the state highways. It extends from Hunua in the south to Otara, and diverges east to Howick and Pakuranga. It also extends from Bombay in the south to Penrose, west to Henderson and Whenuapai, east to Albany and north to Silverdale. And further north and south of the boundaries of the Auckland region.

While the National Grid Corridor Overlay affects a specified area on properties it traverses, it does cross, and through, a large area of urban environment within the Auckland region. This includes both relevant residential zones and urban non-residential zones.

Effects the qualifying matter seeks to manage

The effects that the National Grid Corridor Overlay seeks to manage:

- subdivision, use and development which:
 - compromises the security and/or integrity of the National Grid
 - increases exposures to health and safety risks to people and property
 - is inappropriate i.e. activities sensitive to the National Grid
 - may give rise to potential reverse sensitivity effects i.e. noise and line drip from the National Grid
 - reduces the ability of Transpower to access its infrastructure i.e. lines, conductors, support structures etc. for inspection and maintenance
 - impacts on the ability of Transpower being able to undertake the operation, maintenance, upgrade and development of National Grid infrastructure.

Chapter J Definitions of the AUP defines 'activities sensitive to the National Grid' as shown below:

Any dwellings, papakāinga, visitor accommodation, boarding houses, integrated residential development, retirement villages, supported residential care, education facilities, hospitals and healthcare facilities and care centres.

Subdivision, use, and development under and near high voltage transmission lines presents risks to the safe and efficient operation of the National Grid and needs to be managed carefully. It is critical that any development near the National Grid occurs in an appropriate and safe way.

Subdivision has the potential to significantly impact the National Grid. This is because subdivision provides the framework for future land use. If subdivisions are poorly configured, this can prevent access to the National Grid for maintenance and result in new allotments that cannot be safely built on.

Transpower considers that the level of development that may be prevented by applying the MDRS varies depending on the area (National Grid Yard, National Grid Subdivision Corridor, and National Grid Substation Corridor) within the National Grid Corridor Overlay. This matter is discussed further below in the Consequences for development potential section for this qualifying matter.

Auckland Council considers that the appropriate zoning to apply within the National Grid Corridor Overlay is one which includes the MDRS. This is because the National Grid Corridor Overlay is an appropriate method to manage subdivision, use, and development. However, the inclusion of Policy 3 (at least 6 stories) is not considered appropriate because it would:

- not be compatible with the height and distance provisions in the National Grid Corridor Overlay
- encourage greater density within an area where it is incompatible with the operational requirements of Transpower including:
 - access to its infrastructure for inspection and maintenance
 - the inability of Transpower being able to undertake the operation, maintenance, upgrade and development of National Grid infrastructure
- increase exposures to health and safety risks to people and property
- is inappropriate i.e. activities sensitive to the National Grid.
- may give rise to potential reverse sensitivity effects i.e. noise and line drip from the National Grid.

Objectives and Policies (existing)

Relevant AUP objectives and policies

The relevant AUP objectives and policies, that support the National Grid Corridor Overlay, are as shown below in the table:

AUP Chapter	Objective/Policy	Summary of matter addressed
B3 Infrastructure - Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy [rps]	Objective B.3.2.1(1)	Infrastructure is resilient, effective and efficient
	Objective B.3.2.1(2)	The benefits of infrastructure are recognised
	Objective B3.2.1(3)	Development, operation, maintenance, and upgrading of infrastructure is enabled, while managing adverse effects.
	Objective B3.2.1(4)	The functional and operational needs of infrastructure are recognised.
	Objective B3.2.1(6)	Infrastructure is protected from reverse sensitivity effects
	Objective B3.2.1(7)	The national significance of the National Grid is recognised and provided for and its effective

		development, operation, maintenance and upgrading are enabled.
D26 National Grid Corridor Overlay [rcp/dp]	Objective D26.2	The efficient development, operation, maintenance and upgrading of the National Grid is not compromised by subdivision, use and development.
	Policy 26.3 (1)	<p>Require subdivision, use and development within the National Grid to be undertaken that:</p> <ul style="list-style-type: none"> • meets New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) • does not compromise security of supply/integrity of National Grid • does not compromise ongoing access to National Grid infrastructure • does not foreclose future cable routes • does not compromise operation, maintenance, or upgrading of National Grid infrastructure • manages activities to avoid exposure to health and safety risks from National Grid • manages sensitive activities • provides for use and development, apart from sensitive activities in National Grid Yard (Compromised) • avoids new structures (Uncompromised) except for buildings for low intensity rural

		activities and minor structures <ul style="list-style-type: none"> • limits potential reverse sensitivity effects
	Policy 26.3(2)	Require structure plans to take into account the National Grid Corridor Overlay to ensure that National Grid is not compromised by reverse sensitivity and other effects
	Policy 26.3 (3)	Require activities within National Grid Corridor Overlay within coastal marine area to be undertaken so that achieve all relevant items in Policy D26.3.1

It should be noted that there are additional objectives and policies within several precincts which are traversed by the National Grid Corridor Overlay. These are applied in a site-specific manner and have not been noted here. Transpower also has designations for some of its infrastructure, including substations and several tower sites and/or associated overhead transmission lines.

The management approach in the AUP, to recognise and provide for the national significance of the National Grid in accordance with the NPSET, includes through:

- identifying and providing a buffer corridor in the AUP maps
- associated objectives, policies, and rules in Chapter B3, D26 National Grid Corridor Overlay, and precincts within which the corridor traverses, to:
 - avoid sensitive activities in the corridor
 - manage the actual and potential effects of other activities, including subdivision, use and development, on the National Grid.

The National Grid Corridor Overlay objectives, policies, and standards control subdivision, use and development, including earthworks, so that future development does not compromise the National Grid. And its long-term upgrading and development is facilitated in accordance with the NPSET.

The activity status of subdivision, use and development varies depending on which area within the National Grid Corridor Overlay is applicable. Activities are separated into three parts:

- National Grid Yard – Compromised and Uncompromised
- National Grid Substation Corridor
- National Grid Subdivision Corridor

National Grid Yard

A description of the National Grid Yard has been provided above in the Issues section. The National Grid Corridor Overlay rules control subdivision, use and development within the National Grid Yard.

Rule D26.4.1(A1) provides that all new sensitive activities in a new building or an existing building are non-complying activities within the National Grid Yard including residential. External building extensions for sensitive activities are also non-complying under Rule D26.4.1(A8).

The creation of lots (subdivision) involving a new platform in the National Grid Yard for activities sensitive to the National Grid, or within the National Grid Yard (Uncompromised) is a non-complying activity. Land disturbance is provided for as a permitted activity where it complies with the required standards; restricted discretionary or non-complying where it does not comply with the relevant standards.

Subdivision for controlled activities in E28 Subdivision – Urban and E39 Subdivision – Rural that do not comply with the relevant standards in D26 is a non-complying activity.

Horticultural and farm structures, buildings, and fences are provided for as permitted activities where it complies with the activity status in Table D26.4.1 Activity Table – within the National Grid and D26.6.1 Permitted activity standards.

The permitted activity standards also provide setbacks and height limits for fences, buildings and structures, and accessory buildings.

National Grid Substation Corridor

A description of the National Grid Substation Corridor has been provided above in the Issues section. The National Grid Corridor Overlay rules control subdivision, use and development within the National Grid Substation Corridor.

Under Rules D26.4.2(A30) and D26.4.2(A31) respectively, new buildings for sensitive activities and subdivisions for sensitive activities are a restricted discretionary activity in the National Grid Substation Corridor. For restricted discretionary activity applications within the National Grid Substation Corridor, Chapter D26 sets out matters of discretion at D26.8.1(1) and D26.8(3). Any assessment under these matters of discretion allows consideration of matters such as electrical hazard risks from substations affecting public or individual safety and property damage, reverse sensitivity effects and effects of the development on the efficient operation, maintenance, upgrade and development of the National Grid.

Network utilities/electricity generation that connects to the National Grid (A27) and road activities and network utilities/electricity generation that connects to the National Grid (A28) are provided for as permitted activities. The permitted activity standards also provide setbacks and height limits for fences, buildings and structures, and accessory buildings.

National Grid Subdivision Corridor

A description of the National Grid Subdivision Corridor has been provided above in the Issues section. The National Grid Corridor Overlay rules control subdivision, use and development within the National Grid Subdivision Corridor.

Within the National Grid Subdivision Corridor, subdivision is a restricted discretionary activity provided that the building platform for an activity sensitive to the National Grid can be located outside of the mapped National Grid Yard. Otherwise the application would be a non-complying activity (D26.4.1(A22)).

For restricted discretionary activity subdivision applications within the National Grid Subdivision Corridor, Chapter D26 sets out matters of discretion (D26.8.1(1A)) to allow consideration of matters such as electrical hazard risks primarily from transmission line conductors affecting public or individual safety and property damage, and provision of vehicular access to National Grid support structures required to ensure efficient operation and maintenance.

Amendments required to district plan objectives and policies

No amendments are required to the National Grid Corridor Overlay objectives, policies or rules in response to the MDRS or Policy 3 of the NPS-UD.

Auckland Council considers that the appropriate zoning to apply within the National Grid Corridor Overlay is one which includes the MDRS. This is because the National Grid Corridor Overlay is an appropriate method to manage subdivision, use, and development.

Advice to the Select Committee¹ on the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill, provides support for the retention of the National Grid Corridor Overlay as a method to manage effects on, and from, the National Grid. The advice states that 'existing setbacks can and in some cases, like Transpower, must be kept as intended'.

Transpower considers that in regard to density that it is not appropriate to specify alternative density standards for the National Grid Yard, or the National Grid Subdivision Corridor. In regard to the National Grid Yard, it is not appropriate for safety and security reasons and should be excluded. This means that in the context of implementing the MDRS within the National Grid Yard, the residential density should be zero, or complete exclusion.

In regard to the National Grid Subdivision Corridor, Transpower considers that a case-by-case assessment (by way of a subdivision consent) is essential to ensure that any consequential development can be carried out safely. And without compromising its assets or access to the National Grid. This means that in some areas of the National Grid Subdivision Corridor the MDRS will be appropriate and can be enabled i.e. no impact on density, but in other areas limits on density will be necessary.

¹ Departmental Report on the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill. Ministry for the Environment. Published 3 December 2021. Page 50.

In regard to the National Grid Substation Corridor, Transpower considers that this a management tool which ensures that new sensitive activities are designed safely and avoid reverse sensitivity effects on National Grid substations. Transpower considers that it is necessary that any application is assessed through the resource consent process to achieve this outcome, however it is not intended to limit density.

Auckland Council considers that the inclusion of Policy 3 (at least 6 stories) is not appropriate for the reasons given above in the Issues section for this qualifying matter. Therefore, a zoning response will be required for any areas of the National Grid Corridor Overlay that are within walkable catchments to limit the zoning to one which includes, but does not extend beyond, the MDRS.

Development of Options

As set above, the National Grid Corridor Overlay is an existing qualifying matter in terms of sections 77K and 77Q of the RMA, as:

- it is a matter required to give effect to the NPSET being a national policy statement (other than the NPS-UD)²
- it is a matter required for the purpose of ensuring the safe or efficient operation of nationally significant infrastructure³
- it is currently in the AUP and continues to have effect as part of an operative plan.

A number of options have been considered in regard to the Section 32 assessment of the National Grid Corridor Overlay.

The options for MDRS include:

1. Apply MDRS only i.e. remove the National Grid Corridor Overlay
2. Apply MDRS in a modified form to support the National Grid Corridor Overlay provisions of the AUP to reduce height and include provision for setbacks and access to Transpower's infrastructure
3. Apply the National Grid Corridor Overlay as a qualifying matter in full i.e. retain the current AUP National Grid Corridor Overlay provisions and apply a zone which includes, but does not extend beyond, the MDRS.

Option 3 is the preferred option for the application of the MDRS. Therefore in regard to the MDRS, these will be applied in full relying on the National Grid Corridor Overlay to manage the effects of subdivision, use and development, as it does currently in the AUP.

The options for Policy 3 of the NPS-UD include:

1. Apply Policy 3 only i.e. remove the National Grid Corridor Overlay

² Resource Management Act 1991, ss 77I(b) and 77O(b).

³ Resource Management Act 1991, ss 77I(e) and 77O(e).

2. Apply Policy 3 in a modified form to support the National Grid Corridor Overlay provisions of the AUP to reduce height and include provisions for setbacks
3. Apply the National Grid Corridor Overlay as a qualifying matter in full i.e. retain the current AUP National Grid Overlay provisions and apply a zone which does not extend beyond the MDRS.

Option 3 is the preferred option for the application of Policy 3 of the NPS-UD. It is not considered appropriate that it is applied where the National Grid Corridor Overlay traverses an area which is subject to Policy 3. Therefore, a zoning response will be required that limits the zone to one which includes, but does not extend beyond, the MDRS. Where properties are already zoned Terrace Housing and Apartment Building zone in the AUP, that zoning is proposed to be retained.

The provisions of the overlay, and in particular the National Grid Yard, were considered to be sufficient in protecting the National Grid when included in the AUP. However, Transpower has advised that despite the NPSET being gazetted over 12 years ago, and compliance with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZCEP 34:2001) being mandatory, underbuilds and inappropriate and unsafe development continues to occur under and around National Grid assets. As discussed below in the next section (Consequences for development potential), Transpower have indicated, that in the National Grid Yard, that the level of development that Transpower considers would be prevented by the qualifying matter is likely to be all development.

If the areas located within the National Grid Corridor Overlay were to be up zoned to Terrace Housing and Apartment Building within walkable catchments, this would potentially increase the exposure risk to the health and safety of people and communities by the closer location of a higher level of new buildings for activities sensitive to the National Grid. Other consequences could include reverse sensitivity effects, the inability for Transpower to access, operate, maintain, upgrade, and/or renew its infrastructure, and the security and integrity of the National Grid being compromised by inappropriate subdivision, development and use.

Full properties are currently shown as being affected by the National Grid Overlay in the preliminary public viewer. While the zoning could be reduced to the width of the overlay, this could create a split zone across some properties. While there is the use of split zones within the AUP, this was not considered to be good practice during the AUP process, with the preference for zones to apply to full sites.

Consequences for development potential

The consequences for development potential will vary depending on the area within the National Grid Corridor Overlay: National Grid Yard, National Grid Subdivision Corridor, and National Grid Substation Corridor. The following discussion on development potential has been provided by Transpower (refer to Attachment 1).

Development in the National Grid Yard

The AUP provides for new sensitive activities in new or existing buildings as a non-complying activity within the National Grid Yard. This means that the level of development that would be prevented by the qualifying matter is likely to be all development. While a resource consent can technically be applied for, an applicant is unlikely to meet the threshold test in section. Residential density will in practice be zero (that is, development would be completely excluded). This restriction on development in the National Grid Yard is justified by reference to Policy 11 of the NPSET which requires that local authorities consult Transpower to identify an appropriate buffer corridor within which sensitive activities (such as residential development) will generally not be provided for in plans and/or given resource consent.

Development in the National Grid Subdivision Corridor

Subdivision has the potential to significantly impact the National Grid. This is because subdivision provides the framework for future land use, and if poorly configured, can prevent access to the National Grid for maintenance and result in new allotments that cannot be safely built on.

As a result, all subdivision within the National Grid Subdivision Corridor requires resource consent in the AUP. This corridor and the associated provisions enable Transpower to be recognised as an affected party that needs to be notified of, and consulted with on, any application. Once part of the consenting process, Transpower is then able to provide specialist technical and engineering input relating to the safe location of housing, including construction methodology. Transpower has a team dedicated to this task, along with an online enquiry portal.

The level of development that may be prevented by the National Grid Subdivision Corridor (as a qualifying matter) is therefore difficult to assess in the abstract – a case by case assessment is required to determine whether proposed development can be carried out safely and sufficient access to structures enabled. As explained above, in some areas of the National Grid Subdivision Corridor the MDRS will be appropriate and can be fully enabled (that is, there will be no impact on density at all), but in other area limits on density will be necessary.

Development in the National Grid Substation Corridor

Subdivision and development for sensitive activities near National Grid substations has the potential to result in reverse sensitivity effects due to activities such as noise and dust emissions. These effects, along with potential electrical safety effects can be managed via restricted discretionary activity resource consent for sensitive activities within the 12m National Grid Substation Corridor. Through a restricted discretionary activity resource consent, appropriate design that takes the substation in to account can still allow development to occur at a level permitted by the MDRS, while also minimising hazard risks, reverse sensitivity, and other effects.

As per Transpower's discussion above, the consequences of the National Grid Corridor Overlay on potential development varies on which area an affected property is located in within the corridor. In regard to the National Grid Subdivision Corridor and National Grid Substation Corridor, development will be considered on a case by case assessment and may be appropriate.

The National Grid Corridor Overlay is mapped in the AUP maps. While the National Grid Corridor Overlay affects a specified area on properties it traverses, it does cross, and through, a large area of urban environment within the Auckland region. This includes both relevant residential zones and urban non-residential zones.

A draft map for PC78 has been produced by Auckland Council, as part of the public preliminary response that was provided during consultation for public feedback. The draft maps reflects the National Grid Corridor Overlay as shown in the AUP maps. The draft zoning, incorporating the MDRS and Policy 3 of the NPS-UD, within the National Grid Corridor Overlay identifies the land affected by it within full title boundaries rather than the area traversed by it. This was done to avoid split zones on properties. However, this means that there may be areas within properties that can be developed if it complies with the National Grid Corridor Overlay.

The number of properties affected by the National Grid Corridor Overlay is 2335 with 284 of those properties being located within walkable catchments (subject to Policy 3 of the NPS-UD).

As stated above, the National Grid Corridor Overlay affects a specified area on properties it traverses, and crosses through a large area of Auckland's urban environment. This includes both relevant residential zones i.e. Residential – Terrace Housing and Apartment Building, Residential – Mixed Housing Urban, Residential – Mixed Housing Suburban, Residential – Single House and urban non-residential zones i.e. Special Purpose, Open Space, Business – Heavy Industry, Business – Light Industry, Business – General Business.

Therefore, it is challenging to provide a description for a typical site (or sites) in areas in which the permitted level of development provided for by the MDRS and Policy 3 of the NPS-UD would be prevented by the qualifying matter.

However, there is already restrictions in regard to subdivision, use, and development within the National Grid Corridor Overlay in the AUP through the use of non-complying or restricted discretionary activities and standards for setbacks and height restrictions for permitted activities. The National Grid Corridor Overlay provisions take precedence over the underlying zoning provisions where the activity status for subdivision, use and development are specified and/or more restrictive.

Evaluation of options

National Grid Overlay	Status Quo Apply Policy 3 and MDRS/do not apply National Grid as a qualifying matter	Option 2 Apply MDRS in a modified form to support the National Grid Corridor Overlay	Option 3 Apply the National Grid as a qualifying matter in full and a zone that includes, but does not extend beyond, the MDRS.
Costs of applying the QM – broader social, economic, environmental, cultural	<p>High cost</p> <p>Applying MDRS and Policy 3 fully by not identifying the National Grid may enable the densities sought by the MDRS and Policy 3. However, this does not recognise or provide for the National Grid in the AUP as legally required by the NPSET. This option would also increase:</p> <ul style="list-style-type: none"> • exposure risks to the health and safety of people and communities; • the security and integrity of the National Grid; and • the inability for Transpower to access, and operate, maintain, upgrade and/or renew its infrastructure. 	<p>Medium cost</p> <p>Applying MDRS and Policy 3 in a modified form to reduce height and include provision of setbacks may contribute to a well-functioning urban environment and protect the National Grid. However, this option does not provide for the full development capacity provided for by the MDRS/Policy 3. And will not give full effect to the NPSET as legally required.</p>	<p>Low cost</p> <p>The National Grid Overlay manages both the effects on, and of, the National Grid on and from adjacent properties/activities. The National Grid Corridor Overlay is critical in providing for the security and integrity of the National Grid.</p> <p>This option gives full effect to the NPSET as legally required.</p>
Costs of applying QM – housing supply / capacity	<p>No cost</p> <p>The National Grid Corridor Overlay would not be applied as a qualifying matter in this option. So there is no cost related to housing supply and capacity. But this option does not:</p> <ul style="list-style-type: none"> • give effect to the NPSET as legally required • reduce exposure risks to people and communities 	<p>Low cost</p> <p>The National Grid Corridor Overlay applies to a small percentage of land within Auckland’s urban environment. So there would be low cost in terms of housing supply/capacity. If the MDRS/Policy 3 was amended, the height, setback, and access provisions may only apply to part of a property so the rest of the</p>	<p>Low cost</p> <p>The National Grid Corridor Overlay applies to a specific number of properties within Auckland’s urban environment. And largely traverses across parts of properties so housing supply/capacity may not be affected where the remainder of the property is not affected by the overlay and is suitable to be developed.</p>

	<ul style="list-style-type: none"> • protect the security and integrity of the National Grid • enable Transpower to access, operate, maintain, upgrade and renew its infrastructure. 	property may be able to be developed.	
Benefits of the QM – broader social, economic, environmental, cultural	<p>Low benefit</p> <p>Applying Policy 3 (in particular) may result in not giving effect to the NPSET as legally required. And increase:</p> <ul style="list-style-type: none"> • exposure risks to the health and safety of people and communities; • the security and integrity of the National Grid; and • the inability for Transpower to access, and operate, maintain, upgrade and/or renew its infrastructure. 	<p>Low benefit</p> <p>The National Grid would potentially be protected from inappropriate subdivision, use and development. However, this option will not fully give effect to the NPSET including the requirement to recognise and provide for the National Grid in district plan provisions and maps.</p>	<p>High benefit</p> <p>The security and integrity of the National Grid would be protected from inappropriate subdivision, development and use to the same level as currently protected in the AUP. The benefits of retaining the National Grid Corridor Overlay contributes to a well-functioning urban environment and enables all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.</p>

Risk of acting or not acting

Section 32(2)(c) of the RMA requires this evaluation to assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions. The information about the National Grid Corridor Overlay as a qualifying matter, including information about the critical nature of the National Grid being nationally significant infrastructure, its location and the extent of the overlay is already provided in the AUP. It is considered that this information, and the additional information provided by Transpower, is certain and sufficient and has been through a thorough statutory process to be included in the AUP.

Overall conclusion

In accordance with the MDRS and NPS-UD, the National Grid Corridor Overlay is a qualifying matter for the purpose of ensuring the safe or efficient operation of nationally significant infrastructure i.e. the National Grid. It is also a matter required in order to give effect to a national policy statement (NPSET).

The impact of the qualifying matter on the level of development enabled by Policy 3 and the MDRS is localised and specific to properties which are traversed by the National Grid Corridor Overlay. This means that parts of properties not affected by the National Grid

Corridor Overlay may still enable development depending on the location of the development i.e. whether it is affected by parts of the overlay which restrict development, or not affected by, or within parts of, the overlay which require an assessment against the provisions of the overlay and development may still be appropriate.

Resource Management Act 1991 s77J(4)(b)

For relevant residential zones, the MDRS are modified only to the extent necessary to accommodate the National Grid Corridor Overlay as a qualifying matter. While applying a zone that includes, but does not extend beyond the MDRS, the provisions, including those which are more restrictive in the National Grid Corridor Overlay, would take precedence over the MDRS.

Information Used

1. The following reports, documents, evidence, and plan versions were used to help the development of the plan change and assess the National Grid Corridor Overlay as a qualifying matter.

Name of document, report, plan	How did it inform the development of the plan change
Auckland Unitary Plan (Operative in Part 2016)	Chapter D26 National Grid Corridor Overlay identifies the restrictions relating to subdivision, use and development within the overlay. The AUP maps show the location of the National Grid Corridor Overlay.
AUP Independent Hearing Panel Evidence and recommendations for Topic 012 Infrastructure, energy and transport Topic 042 Infrastructure Topic 064 Subdivision - urban	Supported inclusion of the National Grid Corridor Overlay as a method to provide for, and protect, the National Grid.
Transpower assessment of section 77K (Attachment 1)	Provided insight into the critical nature of the National Grid. Supported retention of the National Grid Corridor Overlay as a method to recognise and provide for the National Grid as legally required by the National Policy Statement on Electricity Transmission 2008.

Consultation

Schedule 1 of the Act sets out the relevant consultation requirements. Mana whenua have been engaged in the preparation of the IPI plan change at various stages in the process as required by Schedule 1 of the Act.

The Council provided an opportunity to the Auckland community to comment on its 'preliminary response' proposals during the period April 19 to May 9, 2022. The consultation documentation included Information #6: Qualifying matters (Part 1).

This information sheet described what a qualifying matter is and which qualifying matters were specifically identified by the government in the NPS-UD and the RMA. And that these specifically identified qualifying matters may make the MDRS and policy 3 less enabling of development in relation to an area within a relevant residential zone only to the extent necessary to accommodate 1 or more of the listed qualifying matters. The government-specified qualifying matters include 77I(b)/77O(b) to give effect to a national policy statement and 77I(e)/77O(e) 'a matter required for the purpose of ensuring the safe and efficient operation of nationally significant infrastructure'.

The information sheet also provided a corresponding list of AUP provisions which relate to the specifically identified qualifying matters which included D26: National Grid Corridor Overlay.

Attachment 1 – Transpower Section 77K Evaluation



TRANSPOWER

Keeping the energy flowing

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8 April 2022

Auckland Council
Auckland Unitary Plan - Intensification Planning Instrument Qualifying Matters
Private Bag 92300
Victoria Street West
Auckland 1142

Attention: Jo Hart

By email: Jo.Hart@aucklandcouncil.govt.nz

Dear Jo

Implementation of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021

Transpower New Zealand Limited (**Transpower**), the owner and operator of New Zealand's national high voltage electricity transmission network (the **National Grid**), is writing to request that National Grid provisions in the Auckland Unitary Plan (Operative in part)(**AUP**) are included and notified as an existing qualifying matter in Council's forthcoming Intensification Planning Instrument (**IPi**) in accordance with section 77K of the Resource Management Act 1991 (**RMA**).

A description of Transpower and its assets, including those in the Auckland region, are included as **Attachment 1** to this letter.

National Grid Provisions are an Existing Qualifying Matter

The AUP includes land use and subdivision rules that regulate activities within a corridor around National Grid transmission lines, National Grid support structures and National Grid substations. In the AUP, the National Grid Corridors are mapped, with the corresponding objectives, policies and rules found in Chapter D26 National Grid Corridor Overlay.

There are three parts to the National Grid Corridors insofar as they relate to council's implementation of the intensification planning instrument:

- National Grid Yard;
- National Grid Subdivision Corridor; and
- National Grid Substation Corridor.

These provisions are detailed below.

National Grid Yard

The National Grid Yard is the area:

- within 12 metres of the centreline of 110kV National Grid transmission lines;
- within 12 metres of the centreline of 220kV National Grid transmission lines; and
- within 12 metres of the foundation of associated support structures.

Rule D26.4.1(A1) provides that all new sensitive activities in a new building or an existing building are non-complying activities within the National Grid Yard, in all zones including residential. External building extensions for sensitive activities are also non-complying under Rule D26.4.1(A8). The definition of “activities sensitive to the National Grid” includes (but is not limited to) dwellings, papakāinga and integrated residential development.

National Grid Subdivision Corridor

The National Grid Subdivision Corridor is the area beyond the National Grid Yard that might fall under the maximum swing of National Grid transmission line conductors in high winds. The extent of this area has been mapped specifically for Auckland and shown on the AUP planning maps. The distance varies depending on the voltage of the transmission line and other specific characteristics which influence the maximum swing of each span. Within the National Grid Subdivision Corridor, subdivision is a restricted discretionary activity provided that the building platform for a sensitive activity can be located outside of the mapped National Grid Yard. Otherwise, the application would be a non-complying activity¹.

For restricted discretionary activity subdivision applications within the National Grid Subdivision Corridor, Chapter D26 sets out matters of discretion (D26.8.1(1A)) to allow consideration of matters such as electrical hazard risks primarily from transmission line conductors affecting public or individual safety and property damage, and provision of vehicular access to National Grid support structures required to ensure efficient operation and maintenance.

National Grid Substation Corridor

The National Grid Substation Corridor is the area measured 12m from the boundary of National Grid Substations as shown on the AUP planning maps. Under Rules D26.4.2(A30) and D26.4.2(A31) respectively, new buildings for sensitive activities and subdivisions for sensitive activities are a restricted discretionary activity in the National Grid Substation Corridor.

For restricted discretionary activity applications within the National Grid Substation Corridor, Chapter D26 sets out matters of discretion at D26.8.1(1) and D26.8(3). Any assessment under these matters of discretion allows consideration of matters such as electrical hazard risks from substations affecting public or individual safety and property damage, reverse sensitivity effects and effects of the development on the efficient operation, maintenance, upgrade and development of the National Grid.

¹ Rule D26.4.1 (A22)

For the purpose of this letter, where referred to as a collective set of provisions including the National Grid Yard, National Grid Subdivision Corridor and the National Grid Substation Corridor, we refer to these as the “National Grid Corridors”. The National Grid Corridors are existing qualifying matters in terms of section 77K(3) of the RMA, as they:

- are a matter required to give effect to the National Policy Statement on Electricity Transmission 2008 (the **NPSET**), being a national policy statement (other than the NPS-UD);² and
- are a matter required for the purpose of ensuring the safe or efficient operation of nationally significant infrastructure;³ and
- are currently operative, and so will be operative in the relevant district plan when the IPI is notified.

There is no ambiguity as to whether National Grid Corridors are qualifying matters. See, for example, the Report of the Environment Committee on the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill dated December 2021, which noted at page 15: *“the qualifying matters set out in new section 77[I] include a matter of national importance and a matter required to ensure that nationally significant infrastructure operates safely or efficiently, and avoid reverse sensitivity concerns. This could include ensuring residential housing is safely set back from high voltage transmission lines, and other infrastructure such as airport noise areas, in order to avoid reverse sensitivity concerns”*. Transpower considers it is not an efficient use of resources for these provisions to be re-litigated as part of Council’s incorporation of the Medium Density Residential Standards (MDRS). As existing qualifying matters, the National Grid Corridors within affected residential zones should be included and notified in Council’s IPI without change.

Process for existing qualifying matters

To assist the Council’s incorporation of the National Grid Corridors as an existing qualifying matter in the IPI, Transpower has provided the supporting detail required by section 77K(1) of the RMA in the following sections of this letter.

(a) Identify by location (for example, by mapping) where an existing qualifying matter applies

The National Grid Corridor Overlay is clearly identified on the AUP planning maps. When read together with the respective definitions, the AUP identifies, by location, where these qualifying matters will apply.

(b) Specify the alternative density standards proposed for those areas where an existing qualifying matter applies

Density in the National Grid Yard

In the National Grid Yard Transpower does not propose any alternative density standards. Development within the National Grid Yard is not appropriate for safety and security reasons

² Resource Management Act 1991, s 77I(b).

³ Resource Management Act 1991, s 77I(e).

and should be excluded. This means that in the context of implementing the Medium Density Residential Standards (MDRS) within the National Grid Yard, the residential density would be zero, or complete exclusion.

Density in the National Grid Subdivision Corridor

Transpower does not consider it appropriate to specify within the IPI alternative density standards in the National Grid Subdivision Corridor. In this Corridor, a case-by-case assessment (by way of a subdivision consent process) is essential in order to ensure that any consequential development can be carried out safely and without compromising the assets, or access to the National Grid. This means that in some areas of the National Grid Subdivision Corridor the MDRS will be appropriate and can be fully enabled (that is, there will be no impact on density at all), but in other areas limits on density will be necessary.

Density in the National Grid Substation Corridor

The National Grid substation corridor is a management tool to ensure that new sensitive activities are designed safely and avoid reverse sensitivity effects on National Grid substations. It is necessary that any application is assessed through the resource consent process to achieve this outcome, however it is not intended to limit density.

(c) Identify why the Council considers that one or more existing qualifying matters apply to the identified areas

As set out above, the National Grid Corridors are an existing qualifying matter in terms of section 77K(3) of the RMA, as they:

- are a matter required to give effect to the NPSET being a national policy statement (other than the NPS-UD);⁴ and
- are a matter required for the purpose of ensuring the safe or efficient operation of nationally significant infrastructure;⁵ and
- are currently operative, and so will be operative in the relevant district plan when the IPI is notified.

Giving effect to the NPSET

The NPSET confirms the national significance of the National Grid and addresses its effects. Importantly, it also addresses effects *on* the National Grid – including the activities of others (for example residential development) and requires that these do not compromise the operation, maintenance, upgrading and development of the National Grid.⁶

The NPSET mandates a corridor for this protection. Specifically, Policy 11 of the NPSET requires that local authorities consult Transpower to identify an appropriate buffer corridor within which sensitive activities (such as residential development) will generally not be

⁴ Resource Management Act 1991, s 77I(b).

⁵ Resource Management Act 1991, s 77I(e).

⁶ National Policy Statement on Electricity Transmission, Policy 10.

provided for in plans and/or given resource consent. This outcome is appropriate and was tested through a comprehensive section 32 analysis undertaken by the Ministry for the Environment (when the NPSET was developed) and a Board of Inquiry hearing, and then subsequently through the section 32 assessment to include the National Grid Corridors in the AUP.

Ensuring the safe or efficient operation of nationally significant infrastructure

Development under and near high voltage transmission lines presents risks to the safe and efficient operation of the National Grid and needs to be managed carefully. It is critical that any development near the National Grid occurs in an appropriate and safe way. Transpower seeks to ensure that risks such as electrical shocks are minimised to the greatest extent possible, access for vital maintenance and upgrade work is not constrained, and reverse sensitivity and direct effects are managed, so that its nationally significant infrastructure can continue to operate in the long-term, keeping the lights on across New Zealand.

Transpower is not opposed to residential development and understands the intent of the recent reforms to address issues with New Zealand's housing supply and affordability. Transpower is working with developers and individuals across New Zealand on a daily basis in an effort to accommodate and support new development in a manner which takes the National Grid assets fully into account. If new land uses are properly designed and managed, effects on the safe and efficient operation of the National Grid can be reasonably managed.

Transpower prefers, wherever possible, to manage such risks and effects proactively. Proactive management through appropriate planning rules such as buffer corridors or setbacks is the most effective way of ensuring development occurs in a manner that is compatible with the National Grid and is consistent with the policy direction in the NPSET and the resulting buffer corridor approach within district plans throughout New Zealand.

While assisting Councils to give effect to the NPSET, the National Grid Corridors protect the safe and efficient operation of the National Grid by:

- ensuring that sensitive activities such as residential development will generally not be provided for in close proximity to the lines;
- partially minimising the risk of inadvertent contact with the lines including the risk of flashovers (where an electrical discharge 'jumps' the air gap between an object and the line);
- helping to reduce nuisance impacts on landowners and subsequent complaints about the lines;
- partially protecting the lines from activities and development that could have direct or indirect effects on them;
- partially protecting access to the National Grid by ensuring development activities cannot occur close to the National Grid and prevent Transpower's access to it; and
- partially enabling efficient and safe operation, maintenance, upgrade and development of the lines.

Despite the NPSET being gazetted over 12 years ago, and compliance with the New Zealand Electrical Code of Practice for Electrical Safe Distances (**NZEC 34:2001**) being mandatory,

underbuild and inappropriate and unsafe development continues to occur under and around National Grid assets. Transpower has included some of these examples in **Attachment 2** to this letter to illustrate the real-world consequences of allowing development to occur under the National Grid and why it is so important that the National Grid Corridors are included and notified in the Council's IPI as qualifying matters.

Corridors and associated provisions are operative

The National Grid Corridors and associated provisions in the AUP became fully operative in 2017 when the associated Environment Court and High Court appeals relating to the National Grid Corridors were resolved⁷. The wider AUP is only operative in part as there are a few outstanding appeals, however these do not relate to the National Grid Corridors.

The provisions were comprehensively evaluated as part of the Proposed Auckland Unitary Plan process undertaken by the Council starting in September 2013. The appropriateness of the provisions was tested by the Council when it undertook its own section 32 analysis during this process, was supported by expert evidence from Transpower through a number of different hearings, and affirmed by the Independent Hearings Panel (IHP) through the various decisions issued.

Transpower provided numerous briefs of evidence to the IHP that described the risks to safe and efficient operation of the National Grid that can result from allowing sensitive and other activities to locate in close proximity to it. The main hazard to people and property is receiving an electric shock, which can occur in a variety of ways. These include events such as conductor drop and flashovers (coming in to contact with the line conductors or where the electricity arcs from a conductor onto an object such as a dwelling or a fence). The efficient operation of the National Grid can also be compromised by enabling development under the conductors or around structures that results in Transpower's access to the assets for operation, maintenance and upgrade activities being significantly curtailed. In relation to the National Grid Corridors, Part One of the Auckland Unitary Plan Independent Hearings Panel recommendations (Topic 042 July 2016) states at Section 3.2:

'The Panel also supports a more stringent rule regime to ensure risks associated with sensitive activities locating within the National Grid Corridor are not increased and to manage new activities to minimise issues of reverse sensitivity especially in areas that will be urbanised in the future.'

Mr Noble and Ms Fincham provided a number of examples that clearly demonstrated the problems Transpower New Zealand Limited faces in obtaining access and adequate working space to undertake repairs and maintenance where development has occurred under and around the national grid. In some cases the under-build has severely restricted and compromised Transpower's ability to undertake maintenance or project work. The need to ensure that these issues do not arise in the future, together with issues associated with the health and safety of people and property and with reverse sensitivity, are key reasons for the Panel's recommendations on the extent of the National Grid Corridor Overlay.'

⁷ *Transpower New Zealand Limited v Auckland Council* [2016] NZEnvC 218 and *Transpower New Zealand Limited v Auckland Council* [2017] NZHC 281

The non-complying activity status for sensitive activities in the National Grid Yard was not altered through subsequent decisions of Council, the Environment Court or High Court on the National Grid Corridor provisions.

(d) describe in general terms for a typical site in those areas identified under paragraph (a) the level of development that would be prevented by accommodating the qualifying matter, in comparison with the level of development that would have been permitted by the MDRS and policy 3

Development in the National Grid Yard

The AUP provides that new sensitive activities in new or existing buildings are a non-complying activity within the National Grid Yard. This means that the level of development that would be prevented by the qualifying matter is likely to be all development. While resource consent can technically be applied for, an applicant is unlikely to meet the threshold test in section 104D of the RMA. Residential density will in practice be zero (that is, development would be completely excluded). As explained above, this restriction on development in the National Grid Yard is justified by reference to Policy 11 of the NPSET which requires that local authorities consult Transpower to identify an appropriate buffer corridor within which sensitive activities (such as residential development) will generally not be provided for in plans and/or given resource consent.

Development in the National Grid Subdivision Corridor

Subdivision has the potential to significantly impact the National Grid. This is because subdivision provides the framework for future land use, and if poorly configured, can prevent access to the National Grid for maintenance and result in new allotments that cannot be safely built on.

As a result, all subdivision within the National Grid Subdivision Corridor requires resource consent in the AUP. This Corridor and the associated provisions enable Transpower to be recognised as an affected party that needs to be notified of, and consulted with on, any application. Once part of the consenting process, Transpower is then able to provide specialist technical and engineering input relating to the safe location of housing, including construction methodology. Transpower has a team dedicated to this task, along with an online enquiry portal.

The level of development that may be prevented by the National Grid Subdivision Corridor (as a qualifying matter) is therefore difficult to assess in the abstract – a case by case assessment is required to determine whether proposed development can be carried out safely and sufficient access to structures enabled. As explained above, in some areas of the National Grid Subdivision Corridor the MDRS will be appropriate and can be fully enabled (that is, there will be no impact on density at all), but in other area limits on density will be necessary.

Development in the National Grid Substation Corridor

Subdivision and development for sensitive activities near National Grid substations has the potential to result in reverse sensitivity effects due to activities such as noise and dust

emissions. These effects, along with potential electrical safety effects⁸ can be managed via restricted discretionary activity resource consent for sensitive activities within the 12m National Grid Substation Corridor. Through a restricted discretionary activity resource consent, appropriate design that takes the substation in to account can still allow development to occur at a level permitted by the MDRS, while also minimising hazard risks, reverse sensitivity, and other effects.

Transpower thanks Council for the opportunity to proactively engage in the IPI process. Should you require clarification of any matter, please contact Rebecca Eng at Transpower (09 590 7072), or on the following email: Rebecca.Eng@transpower.co.nz

Yours faithfully

A handwritten signature in blue ink, appearing to read 'Rebecca Eng'.

Rebecca Eng

Technical Lead - Policy

⁸ Primary Statement of evidence of Andrew Charles Renton on behalf of Transpower New Zealand Limited (3766)(Underground Cables and Substations), Topic 042 – Infrastructure.

ATTACHMENT 1

Transpower's assets and purpose

Transpower is the State-Owned Enterprise that plans, builds, maintains, owns and operates the National Grid. The National Grid extends from Kaikohe in the North Island to Tiwai Point in the South Island and comprises some 11,000 circuit km of transmission lines and cables (overhead and underground), and over 170 substations across the country.

Transpower owns and operates extensive network of National Grid assets within the Auckland region. A map showing the location of Transpower's National Grid assets in the region is provided on the following page. There are approximately 24 transmission lines, eight underground cables, 20 substations and telecommunications infrastructure.

The National Grid transports electricity from where it is generated to the distribution companies that supply electricity to homes, businesses and schools throughout New Zealand. It also directly supplies a number of large industrial customers. The National Grid literally keeps the country's lights on.

Electricity underpins economic growth and supports the economic, social and cultural aspirations of all New Zealanders. Electricity contributes actively to the lives of people in New Zealand every day. Further, electricity is critical to the country's transformation to a zero-carbon economy. If Aotearoa New Zealand is to meet its emission reduction targets by 2030 and 2050 then the electricity sector will need to produce and transport around 70% more renewable electricity than it does now. It is estimated that around 60-70 new connections to Transpower's National Grid will be required in the next 15 years, with this trend continuing through to at least 2050. This is in addition to the 10-20 major upgrades to the National Grid that will also be required before 2035.

Transpower Assets

Auckland

Legend

Territorial Land Authority

Boundary

NZ Roads

Highways

Transpower Assets

Cable Protection Zone

Overhead Fibre Cable

Underground Fibre Cables

Site

ACSTN

COMMS

HVDC

TEE

Transmission Line

0kV Overhead

11, 66kV Underground

11, 33, 66 kV Overhead

110kV Underground

110 kV Overhead

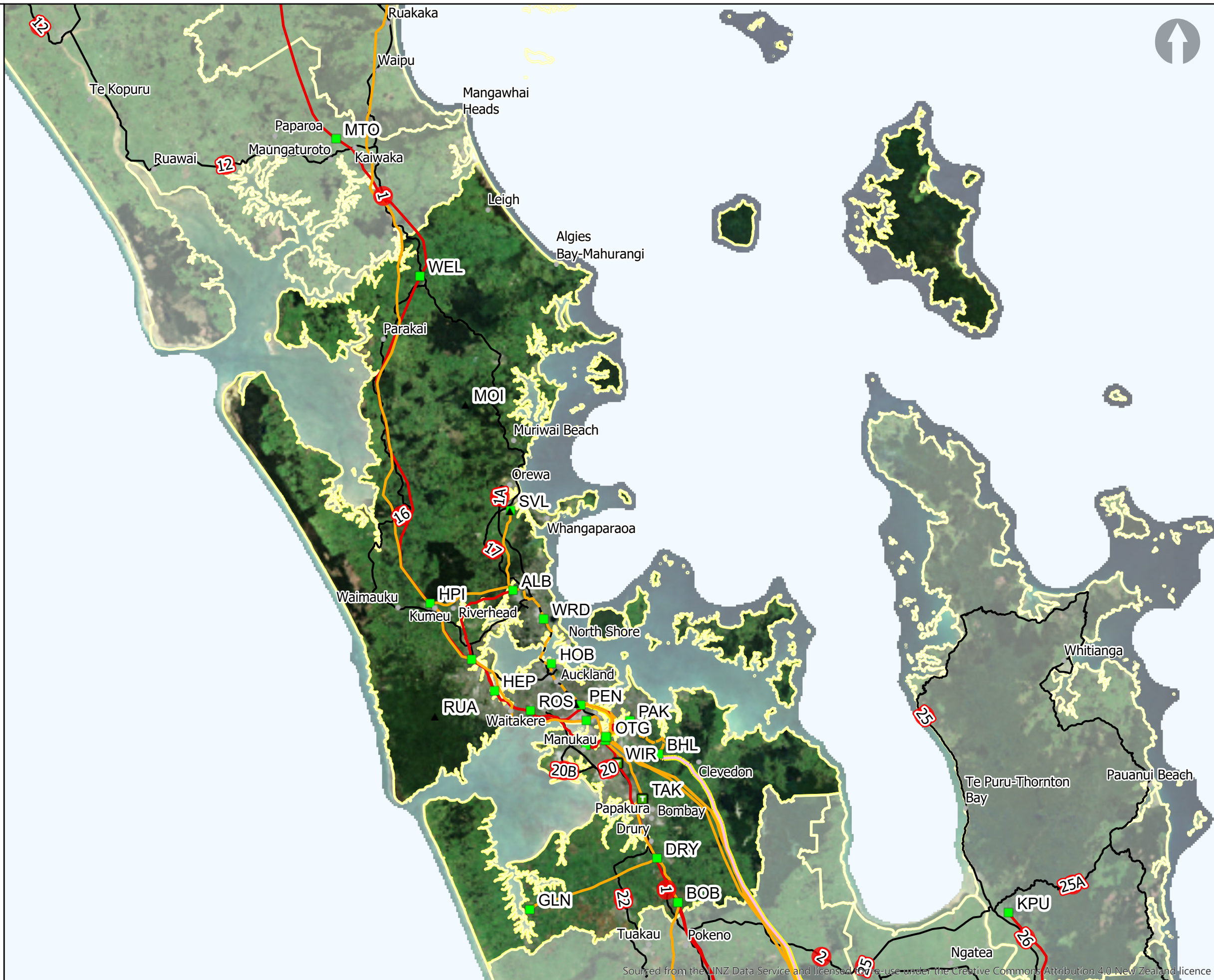
220kV Underground

220 kV Overhead

350 kV Overhead

350kV Submarine

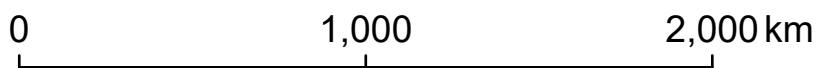
400kV Overhead



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Projection: NZTM 2000 Scale: 1:609,000 Plan Size: A3L



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Date: 8/04/2020 Drawn by: berrymanem

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ATTACHMENT 2

Recent examples of inappropriate development affecting the safe and efficient operation of the National Grid

178 McLeod Road, Te Atatu

On 5 July 2020, Transpower identified that some recently installed temporary scaffolding erected as part of the construction of a residential development at 178 McLeod Road Te-Atatu, was encroaching on the setback requirements of NZECP 34:2001. The contractor was also breaching a number of consent conditions as a result.

The site was already known to Transpower as a number of buildings were built higher, and in closer proximity to the National Grid, than what was consented. As a result, a variation was required to be prepared to ensure that the buildings would sit within the approved height in proximity to Transpower's assets.

Transpower requested on two occasions that all work on the site be stopped and the affected area of the site needed to be barricaded off until appropriate safety measures could be put in place. Due to the proximity of the overhead high voltage power line there was a serious electrical safety risk to workers on the site and the general public due to proximity of the scaffolding to the 110kV line (as a flashover can occur even without direct contact with the conductor).

Further, as a result of the lack of appreciation from the site owner around the risks of carrying out construction activities (including installing or removing scaffolding) in close proximity to high voltage lines, Transpower had to request that the site be shut down by WorkSafe until such a time that the contractor had developed, in consultation with Transpower, a thorough construction methodology that confirmed NZECP 34:2001 could be met for construction of the remainder of the buildings on site.

Otahuhu-Whakamaru Circuit 1

On 6 October 2021 the Otahuhu-Whakamaru circuit 1 tripped as a result of a concrete pump truck parked beneath the transmission lines on a residential construction site (as shown below). While the robotic arms of the truck were clear of the lines, a flashover occurred causing the circuit to trip and damage to the truck and freshly poured concrete.

This recent example is not isolated. While not a residential activity, a shed associated with a house on the same property at 300 Hasketts Road which was built directly under the National Grid was subject to a flash over – this example was also caused by the arm of a concrete truck moving up into the overhead transmission line. The flashover caused the solar power system to be damaged and the vehicle tyres to blow out.



Photo 1: Concrete pump truck parked beneath National Grid transmission lines

Mary Dreaver Street, New Windsor

On 16 June 2014, a tower foundation crew was carrying out a pre-works inspection at Tower 48 on the Henderson to Roskill (HEN-ROS) 110kV line. This crew discovered a dwelling was under construction directly below the line. This new dwelling now blocks access to the tower site preventing foundation works from being able to be undertaken. This places the structure and future supply of electricity at risk.

The following photo clearly illustrates the difficulties now arising at that site. Included below is also the original subdivision plan, which envisaged a setback from the transmission lines.

While the subdivision consent was granted prior to the NPSET being gazetted, the subdivision consent that was granted identified a corridor and building platform locations. Had the house been constructed as per the subdivision plans access, access to the tower would have been provided for.

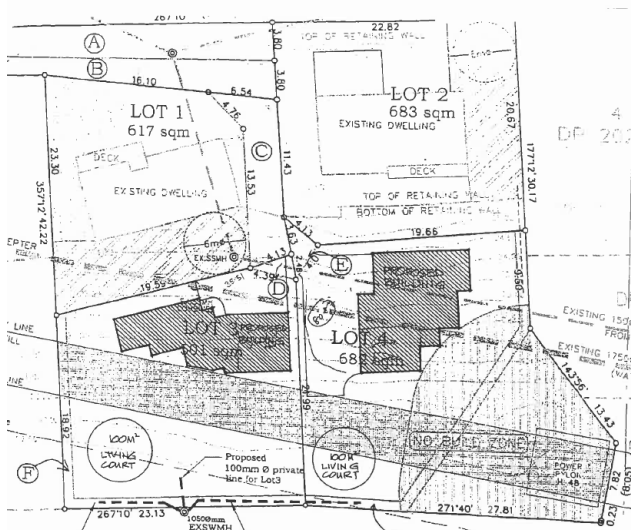


Figure 1: Subdivision plans for the Mary Dreaver site



Photo 2: New dwelling blocking access to Tower 48 HEN-ROS line