

WAIRAKEI TO WHAKAMARU REPLACEMENT TRANSMISSION LINE Project Newsletter

Keeping the energy flowing



TRANSPOWER

Overview

This is Transpower's second newsletter about our project to replace the existing Wairakei to Whakamaru 'B' line (via Poihipi Road) with a new double-circuit 220 kV transmission line. It is planned to have the replacement line commissioned in 2013.

Preferred route released

In September last year, we sent information out about a number of route options for the replacement transmission line and sought your feedback. Since November, we have been considering the feedback received and undertaking more detailed technical, environmental and social investigations to help identify a preferred route.

This work has resulted in a preferred route option as displayed overleaf.

Main features of the preferred route

The main features of the preferred route (about 500 metres wide) are:

- a route in the general vicinity of the existing Wairakei–Whakamaru 'B' line route, but deviating to the north between Tuhingamata Road and Kaahu Road
- a narrowing of the width of the preferred route, and refining its boundaries in some sectors following our onsite investigations.

This route was preferred on balance because, compared to other options, it is the least visible and avoids as much as possible existing dwellings, reduces impacts on surrounding communities, and ties in well for further generation development at Mokai and Te Mihi.

Inevitably, some residents will be closer to the new line; this is unavoidable, and we are committed to working with those residents to minimise the impact.

The analysis behind the preferred route

To get to the preferred route, we undertook a two-layered assessment of the original route options. The first assessment looked at each route from various economic, social, cultural and environmental factors.

While the first assessment gave us a base case, it didn't reflect the importance of each factor. So in a second assessment we then assigned a weighting to each factor from a Resource Management Act (RMA), social and industry perspective.

More about the route option evaluation, how the preferred route was chosen and the feedback received on each route sector is in our Preferred Route Report, available from www.gridnewzealand.co.nz/wrk-wkm-publications.

Who is Transpower?

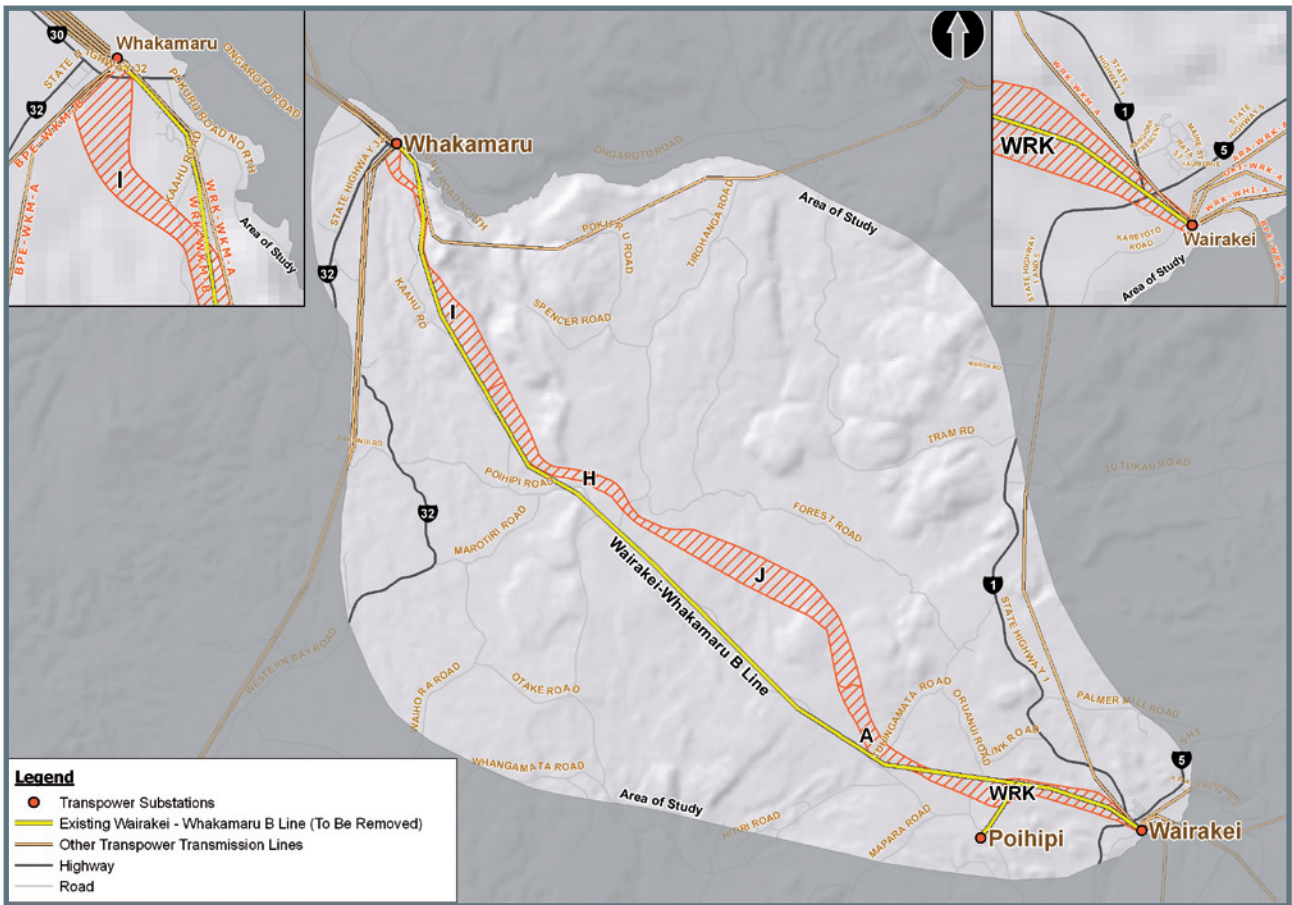
Transpower is the owner and operator of the National Grid – the network of high voltage transmission lines and substations that connect areas of generation to towns and cities across New Zealand.



What are the benefits of the new route?

The preferred route has a number of advantages compared to the existing B line route, including:

- potentially fewer affected landowners
- the ability to reduce the visibility of the line (visibility will be further considered in the next stage)
- avoiding the crossing of Whakamaru Village at the northern end.



Process going forward

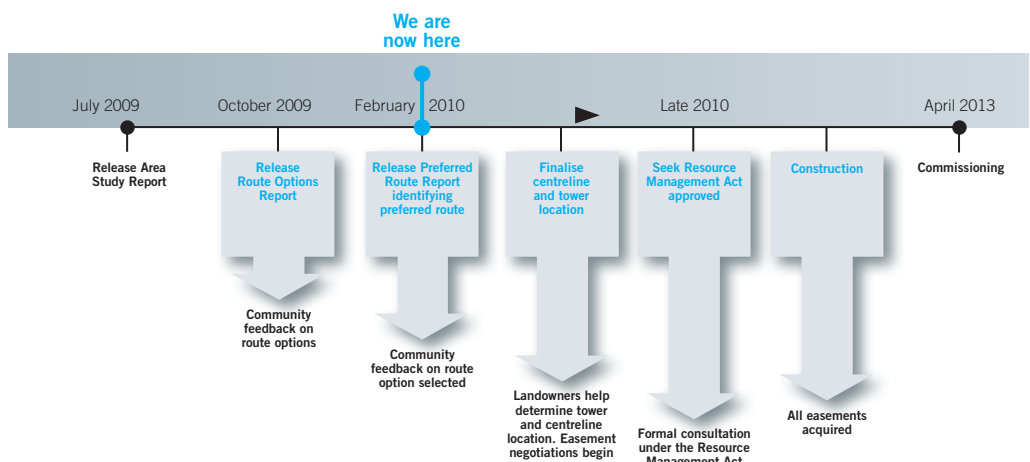
Now that we have determined a preferred route, we will work to define exactly where the new transmission line and supporting towers will be located. This will involve considerable discussion with landowners within the preferred route, and on-the-ground engineering, landscape and other investigations. Discussions with landowners outside but close to the preferred route may also be required.

We are also holding an information day in Taupo for people with a general interest in the project - see inset on opposite page for details.

Once finalised, we will work to have this line route approved and protected under the Resource Management Act 1991.

Providing feedback

We will be in touch with landowners directly affected by the preferred route to obtain their feedback on line alignment within the preferred route. If you are not an affected landowner but would like to ask questions of the process to date or going forward, please feel free to contact us at gridupgrade@transpower.co.nz, or 0800 33 88 66.





Matters raised during consultation

As well as obtaining much useful feedback on the route options through responses to our September mail-out and at the Information Days, we also received queries about electric and magnetic fields, transmission line noise, the visual effects and property easements for the new line. These are discussed below.

Visual effects

As part of determining a preferred route, Transpower has taken into account the visual impact of the replacement transmission line. Areas with high landscape values (like areas of elevated land that are highly visible from a range of public viewpoints) have generally been avoided. An example of this is in the deviation of the preferred route from the existing route between Tuhingamata Road and Kaahu Road, where the existing line route is on higher ground (ie more visible) and along a main road (Poihipi Road). As we move to the next stage – identifying the specific positions of towers – we will be able to also look at tower heights and spans to minimise the visual impact. Along with this work, we will also look at visual mitigation effects for people close to the route on a case-by-case basis. This mitigation would consider factors such as distance of towers/conductors, orientation of houses, and existing screening (eg trees), and the type of mitigation, such as planting.

Electric and magnetic fields

We have now undertaken some preliminary calculations on the expected field strength of the electric and magnetic fields from the new line compared to the existing line. In both cases, the levels are well within the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.

The two tables show the difference between the replacement line and the existing line at different distances for electric and magnetic fields respectively.

The replacement line will have:

- considerably less electric field strength than the existing line at most distances
- a comparable magnetic field strength to the existing line.

Despite the replacement line having significantly more transmission capacity, its double-circuit duplex (ie twin conductor) configuration helps provide some cancellation of effects compared to the existing single circuit and simplex configuration.

For more information on electric and magnetic fields view our factsheets: <http://www.gridnewzealand.co.nz/info-factsheets>.

Audible noise

Transmission lines have an audible electrical noise associated with the corona discharge around the conductor (particularly during humid wet days). Transpower's calculations of the expected noise emissions from the replacement line compared to the existing line are provided below. As can be seen, the replacement line is dramatically quieter than the existing line for electrical noise and well within the New Zealand standard for noise at the boundary. The quieter line is due to the duplex configuration for the replacement line which will minimise corona discharge and therefore noise.

Come along to the information day

We are holding an information day on 8 and 9 April at the Taupo Library in Story Place at the times indicated below. This will be an opportunity, particularly for people not directly involved, to find out more about the project and route selection process.

- 8 April 2010 (12pm-8pm)
- 9 April 2010 (9am-12pm)

Electric Field Strength* as a % of the ICNIRP Guidelines

Existing line	32%	51%	9%
Replacement line	25%	45%	2%
	Directly underneath the centreline	10 metres away	25 metres away**

* Assumes maximum normal operating conditions.
** Transpower's easement will be approximately this distance from the tower.

Magnetic Field Strength* as a % of the ICNIRP Guidelines

Existing line	19%	13%	3%
Replacement line	22%	13%	3%
	Directly underneath the centreline	10 metres away	25 metres away**

* Assumes maximum normal operating conditions.
** Transpower's easement will be approximately this distance from the tower.

Audible Noise in dB(A)*

Existing line	39.3	34.5
Replacement line	13.2	10.2
Taupo District Council night time limit	NA	40.0
	Directly underneath the centreline	25 metres away**

* Assumes maximum normal operating conditions.
** Transpower's easement will be approximately this distance from the tower.

Obtaining easements

As we move through to the process of defining the actual location of the line and supporting towers, we will need to engage more with landowners with property underneath or close to (for example within about 25 metres of the line or supporting towers) with a view to eventually purchasing an easement.

What is an easement?

An easement is a property right over a specified area of land which is then registered on the property title. An easement agreement defines the land subject to the easement and sets out the respective rights and obligations of Transpower and the landowner over that land. The landowner continues to own the land, but their rights over the easement area purchased by Transpower are subject to an agreement with us.

Easements are a common property right in New Zealand, often used for purchasing rights of access like paths and driveways between neighbouring properties.

How wide would the easement for this line be?

The width of the easement needed for the new Wairakei–Whakamaru C line is around 50 metres (larger in some places to accommodate the extent to which the conductor can swing out in longer spans).

For more information about easements view our Easement Factsheet at:

<http://www.gridnewzealand.co.nz/wrk-wkm-publications>.

Questions and Answers

Why was the western route (sectors C and D) not preferred?

In general terms, the western route scored poorly in terms of proximity to dwellings and issues associated with proximity to the other existing lines (in terms of possible high impact low probability events taking all lines out). Specific details on route selection can be found in the Preferred Route Report available from www.gridnewzealand.co.nz/wrk-wkm-publications.

Why was the southern route (sectors B and E) not preferred?

In general terms, the southern route scored poorly mainly because of the presence of dwellings and community facilities near Marotiri in sector E. So while sector B had some positive attributes, any route through E would have been less than favourable. Specific details on route selection can be found in the Preferred Route Report available from www.gridnewzealand.co.nz/wrk-wkm-publications.

How wide is the preferred route?

The preferred route is typically about 500 metres wide, generally allowing enough space for further refinement in terms of actual tower location.

The preferred route goes over my house: will Transpower purchase or move my house?

We are yet to define the exact location of the line and supporting towers within the preferred route, but when we do, we will be looking to avoid dwellings and farm/accessory buildings as much as possible. The easement width required for the new line will be about 50 metres, compared to the preferred route width shown of approximately 500 metres, so we will have some scope to avoid buildings. Where a final alignment does pass over dwellings or farm/accessory buildings we will discuss options with affected landowners and these may include moving the structure or buying the entire property.

Can I still have a say?

Yes. We will be progressively discussing the preferred route with those landowners still directly affected. If you are not a directly affected landowner, but still have some questions, please email us (gridupgrade@transpower.co.nz) or call us on 0800 33 88 66.

For more information on the Wairakei to Whakamaru Replacement Transmission Line Project, please visit www.gridnewzealand.co.nz. Alternatively call us on 0800 33 88 66 or email gridupgrade@transpower.co.nz

