

Submission on Publicly Notified Requirements for Designations under the Resource Management Act 1991
Section 145 of the resource management Act 1991

To: The Minister for the Environment
Freeport Grid Upgrade submissions
P.O.Box 4405
Hamilton East.

This submission relates to the notices of requirement and/or applications for resource consent, lodged by transpower New Zealand Ltd for the North Island Grid Upgrade Project.

Submitter/s.

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Our submission is incomplete due to time restraints.

First and foremost we have not had enough time to complete this document to our required standard or to go through all the evidence presented by Transpower. We with respect reserve the right to add to this before or at the Hearing.

BOI evidence for NIGUP

Refer our submissions throughout this whole process. Available from the Electricity commission website.

We do recognize the need for improvements to the National Grid but we are opposed to the 400kv option. This is not a case of NIMBY not in my backyard. It is wanting what is best for us now and our future generations at the lowest cost but still providing security of supply with leaving options open for new technology to be incorporated into the National Grid..

Consultation process

Peter Phillips evidence

item no 16

Consultation plans for each part of the Upgrade project were designed to meet seven objectives.

C that T/P approach the consultation with an open mind and not merely present affected parties with a fait accompli,

Item no .18

*I consider that the **purpose** of the consultation was stated at the outset of the consultation on each element of the project.*

Decision of 400kv made by transpower was preterminded at the stage of consultation with the communities affected by the 400kv proposal.

item of our evidence was the first contact we all rec'd from T/P and heard about it.
T/P newsletter Issue 1. (This was issued in October 2004)

THE NORTH ISLAND 400KV PROJECT. (This was the heading no mention of other options) Our interpretation of that newsletter.

Initial contact was **we have decided** on the 400kv option .we are now focusing on two possible routes within the preferred corridor. We need to do further investigations into technical and engineering suitability of the 400kv, to do that we need your permission to gain access to the properties on the two proposed routes. Then of course we have to gather information for the RMA process so we need to look at the environmental , social and cultural impacts so we are prepared to counter any problems in the RMA process..

This set the tone of the process from transpower.

We as ordinary lay people had to, and have learnt an extraordinary amount about the Electricity Industry of NZ in the process.

The greater NZ community were not offered any input to this initial decision by transpower .

- 1 One could reflect that this was not done by transpower because it would involve the general public becoming aware of what was intended at an earlier stage.ie. 400kv grid backbone. Principle of divide and conquer attitude.

Evidence to back this up

The refinement studies was carried out between Oct 03, and Jan 04

Refer Minister of Energy: Transpower Response to Connell Wagner Report2006
21 July 2006
Page 9 of 9

Appendix 1 "Grid Development Plan Vision Foreword

As explained in the Transpower's Grid Upgrade Plan, 2005:

The System Vision is intended to drive Transpower strategies and policies for the long-term growth and management of the Transmission System. It includes the two related initiatives of Grid Vision and System Operation Vision. A Grid Vision concept for the future transmission grid in 2020 and beyond was developed in phase 1 of the System Vision investigation. The executive endorsed the 2020 Grid Vision concept in July 2002 and requested a detailed investigation (phase 2) be undertaken to confirm the Grid Vision concept from technical, environmental and economic prospective.

The System Configuration work stream is one of the four major work streams in phase 2 of Grid Vision Investigation. The objective of the System Configuration work stream is to carry out necessary system studies to establish transmission grid augmentations required to meet system demand up to 2040. A further objective is to assist with necessary studies for the other main areas of the Investigation project.

The System Configuration work stream is responsible for the following tasks in a logical order:

- a) *Identify issues on this existing transmission grid,*

b) Identify possible development options which can resolve all issues and provide sufficient transmission capacity for the next 40 years and beyond,

c) Produce draft development plans for each of the development options, and contribute to decision making on the preferred development option,

d) Carry out necessary system studies to refine the draft development plan from task c), and provide support to the other work streams of the investigation project.

Tasks a) and b) was completed in July 2003 and three broad options (or high level options) was identified as the possible directions for the future (long term) National Transmission Grid.

They are: -

1. The 220 kV option, in which the highest voltage in the national grid will remain at 220 kV for the next 40 years,

2. The 330 kV option, in which some of the existing transmission lines will be converted/rebuilt to 330 kV to supply the demand growth in the next 40 years and beyond,

3. The 400 kV option, in which some 400 kV lines will be built within or in parallel with the corridors of the existing 220 kV lines. These 400 kV lines will (after commissioned) eventually replace the 220 kV lines in parallel with them.

Task c), the high level studies were carried out between July and October, 03. In this high level study phase, the North Island power system was broken down into several transfers. System developments for each transfer were determined based on analysis of transfer requirements and load ability of transmission lines at the three voltage levels. Load flow studies are also carried out to test the developments for 2010 and 2040, to calculate losses and to estimate additional reactive power requirements. **The last task, task d), the refinement studies, was carried out between Oct, 03 and Jan. 04.**

Correspondence\CEO\SIG 127 -Jul.doc

The process has been contentious for all involved

Refer cabinet paper transmission and distribution – govt. policy statements

Released under the OIA appendix no _____

The minister of energy David Parker had concerns over the process

extract of item 11 follows

The approval process for the 400kV grid upgrade plan (which is the first major new line in New Zealand for well over a decade) has proven fraught and contentious. There appear to be many reasons for this, including relationship issues, the apparently incomplete initial job by Transpower in identifying and objectively assessing alternatives in its application; controversy among affected communities, and Transpower's very public promotion of the project as required urgently by 2010¹.

Consequences of Transpowers' predetermined decision of 400kv backbone

Refer NIGUP amended proposal application for approval 20th October 2006.

Paragraph 47.

The approach taken by T/P, and the commission in their draft decision, is to select a project option based on a known technology and for future stages and

¹ More recently, Transpower, following further work with the Commission, has suggested a date of 2012.

development to be consistent with this technology , for example , choosing a 220kv line of certain design characteristics would be followed by a similar development when required.

The above means that since Transpower's 400kv option has been approved by the electricity commission for the NIGUP any future stages ie; the whole backbone when it is required will be 400kv.

Evidence

S.Allan evidence (1) item no 32.

"It is my opinion that the stage at which public consultation was undertaken was the correct one, prior to that, for both the overhead line & U/gd cable routes etc....There would have been inadequate information to focus on issues and it is ,in my opinion unlikely that consultation would have lead to the identification of additional or optional **CORRIDORS or Routes.** "

This is not just about corridors and routes but should be about the type of transmission that the people of this country will agree to pay for and live with.

We are talking about a life of approx 100years on a new line. This is a legacy that will be left for our children and grandchildren.

The identification of the preferred transmission option had "suitably progressed and had occurred by Oct 2004.

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Taylor evidence item 17

17. **THE** identification of environmental effects required to satisfy the above consultation objectives could only occur once Transpower had suitably progressed the identification of a preferred transmission option. This had occurred by October 2004, and Transpower's initial investigations progressed to the consultation phase of route identification.

In the short time allowed to us with our family and working commitments to compile this evidence we may have missed where transpower and their consultants have approached the subject of the accumulative effects of the new and the existing lines

The accumulative effects are of great concern to us and our community.

S.Allan evidence

Item No 68.

Risk of system failure from natural or haszard where paralleled other lines, **WAS NOT** of sufficient IMPORTANCE to justify separate consideration.

The minimum separation distance between lines would address that aspect.

Question of item 68

What is the minimum distance between lines is there a regulation.

If so what is it.

NPS on electricity transmission and the (NES) National Environmental standards for electricity have not yet been finalized .

Hunua has 4 transmission lines passing through the community .It is not appropriate for this BOI to say they are not law as yet so they are not to be considered for this inquiry.

It is known that the minister now has the reccomendations for the NPS on electricity transmission but has not yet released it.

If the proposed NPS and NES do become law as they stand. The public will not get a say in what T/p is planning to do with the existing lines unless they make a submission on the NES or a consent is required which will be limited.

The majority of the population in this country would not have a clue that these proposals are being put forward .They would not know about them unless they decided in future to undertake an activity in which they would be affected.

In the Transpower NOR they have provided narrow view photos of the different sections of the proposed line and drawn in the proposed new 400kv line .They have not shown the whole picture. ie How close the all the existing lines are in relation to the 400kv proposal neither have they shown the visual impact of all towers and lines throughout the community. We would suggest with todays technology in graphics design it would not be an unreasonable request that transpower could produce this and present it for evidence.

We would suggest the visual impact and the perceived but not yet proven ELF-EMF issues are of great concern to our community and we present the Bioinitiative Report for Evidence.see appendix_ or the website for this report.

www.bioinitiative.org/report/index.

This is the latest in a number of reports expressing concerns re the Health impacts of ELF-EMF issues associated with transmission lines.

This one re the route selection process. Accumulate effects with existing lines difficult to handle so Transpower left them out with the route selection but because they could acknowledge some kind of benefit in their analysis re the dismantling of the ari-pak line

they included that in their visual impact. The visual impact of the ari =pak to the proposed 400kv would be totally different in scope and size.

The following is from S Allan evidence 1

69. **OTHER** aspects considered but not specifically included in the analysis, drawn from consultation, related to how to handle the presence of existing lines, cumulative effects, and mitigation. The presence of existing lines, and the consequent potential cumulative effects in some areas was regarded as a difficult issue to address. As the western route involved the removal of the ARI-PAK A line, there were also questions around how to assess the impacts, given that the environment was already modified. In particular, how were such impacts to be assessed against the "greenfields" situation of other route sections? Along with these considerations was a strong expression from parts of the community that they had "done their bit" and it was time for others to experience the effect of such infrastructure.
70. **IT** was noted that where there were existing lines, including the ARI-PAK A line, this had modified the environment. The community, and individual farming operations had adjusted to their presence. However, in the analysis leading to the identification of the preferred route, the presence of the existing ARI-PAK A line was specifically taken into account only in the visual and recreational assessments, and, as appropriate, into the evaluation of airstrips. Thus it was felt that undue weight would not be placed on the presence of existing lines in the overall analysis. There was no basis to "skew" the assessment on equity grounds towards areas which had not been affected in the past. Further, the concept of "co-location" of major infrastructure (found in some district plans) was also noted, although this was not included in the analysis.
71. **THE** ability to mitigate effects was recognised as an issue, but not one that was amenable to inclusion in the analysis to choose the preferred route option. Opportunities to mitigate line effects were considered to be available through line design parameters such as the choice of insulator material or the shape of the earth peak, through careful route choice and through detailed line design. At the scale at which the route choice was being made, precise opportunities for site by site mitigation (such as strategic planting or tower positioning to minimise effects on farm operations) could not be ascertained. Therefore, they could not be taken into account in the route choice.

92. **IN** particular, in the Hunua area, section 5, a route option which ran to the west of the existing three lines, and a further option in the middle of the valley were considered. The former carried a high degree of engineering risk in that the existing two 220kV lines would need to be crossed once or twice, while the latter would be more visible and would directly affect more development than the two options which were proceeded with.
102. **THE** two route options which were evaluated in further detail, including through consultative processes, were subjected to a careful analytical decision-making method. There were a number of complex reasons why the western route was ultimately preferred over the east, and it is not possible to derive a simple but fully comprehensive summary of the distinctions. However, the following summary identifies some of the key considerations which led to the eastern route sections generally being less preferred than the west:
- (b) Route section 5E followed the highly-visible route of the ARI-PAK A line. Its greater visibility, potential to affect more dwellings, proximity to Paparimu School, and the impact on ecological and recreational values were greater than in terms of the western option.

Easement Stage and Ongoing Alignment Improvements

105. **THE** Routeⁱⁱ stage was completed with the hearings of submissions, the review of the interim route decision, a further report and completion of the specialist working papers from draft to final form²¹.

With respect

The full impact on the environment, the accumulative effects of all the lines through Hunua and risk factors are not known at this time and therefore cannot easily be either Avoided, remedied or Mitigated .

We refer you to the Electricity commission's paper
Final Decision on transpower's North Island Grid Upgrade Proposal dated 5th July 2007

Page 27 on the report.

6.4 Community Impact

6.4.4. The commission asked t/p to confirm whether the contingency included in the costs for which t/p has sought approval is sufficient to allow t/p to address community concerns expressed during the public conference. In Particular, the commission asked t/p whether the contingency could divert the towers around Hunua if that was required to lessen the impact on the community. T/p indicated that this is one mitigation measure that it was considering, and that this matter could be addressed in the RMA process if raised.

Refer 6.4.5 and 6.4.6 also 6.5.4 This contingency amount was increased in the amended proposal by \$30million over the original proposal.

The following is an extract from the NOR part 10 section 8 pages 39 & 40.

SECTION 4: HUNUA BASIN

Existing Landscape:

The topography in the vicinity of Hunua township is a basin with low rolling terrain. It is back-dropped by the Hunua escarpment to the east and the Highridge Road hills to the north. The area generally slopes toward the Hunua escarpment which rises abruptly from the eastern side of the basin; the Wairoa River following the base of the escarpment.

The backdrop hills are clad in bush, regenerating shrubland and plantations, while the rolling terrain has mixed landuses, including occasional dairy farms, dry stock grazing, horse studs and training facilities, and a relatively close pattern of lifestyle subdivision. There are substantial numbers of shelter belts, shelter trees, and small woodlots.

Hunua is a small service village on a hill, with a school, shop, volunteer fire brigade, DOC offices, community facilities, and a number of residential properties. The village is dominated by the OTA-WKM A & B lines which run through the middle of the settlement.

Aesthetically the most memorable and distinctive features are the Hunua escarpment and Wairoa river, and to a lesser extent the Highridge Road hills. The escarpment and river follow the Wairoa North fault line, and the escarpment is largely covered in native bush. The river is incised in a relatively narrow valley in this section, and the Hunua Falls in particular, are a well recognised scenic location. Several recreational facilities are located along the river at the toe of the escarpment, including Camp Adair, Kokako Lodge, and the Presbyterian Camp. The valley followed by Sky High Road is also picturesque. The general landscape within the rest of the basin is more typical of the rural fringes of the Auckland urban area.

There is a range of natural character within the basin. The Hunua escarpment and Wairoa River have a high degree of natural character. Most of the escarpment is in reserve land comprising largely native bush with some plantation forestry, and the river is incised within a smaller valley in which development is relatively sparse. The Highridge Road hills have a more moderate level of natural character. The area was previously cleared and contains a mosaic of mostly regenerating native shrubland and plantation forest. There are a number of lifestyle properties on ridges and spurs on this hill country, and the OTA-WKM A, B & C lines and the existing ARI-PAK A transmission lines also cross the hills. The lower terrain has less natural character again. The land has been cleared so that there are only occasional remnants of native vegetation. It is closely settled with mixed landuse patterns and is crossed by existing infrastructure. This area has a moderately-low degree of natural character.

Landscape Effects:

The line will be a prominent feature across the basin, crossing a relatively closely settled lifestyle area, and passing between Hunua village and the Hunua backdrop.

The line will, however, replace and follow the alignment of the existing ARI-PAK A line with some minor modifications. It will follow a middle landscape, maintaining as much separation as practicable from Hunua village on the one hand, and the picturesque landscape along the Wairoa River on the other.

The line will have some effect on ecological aspects of natural character as a result of clearance of small areas of regenerating shrubland on the Highridge Road hills. Effects on the landscape's natural appearance will be moderated by the settled and modified nature of the landscape, and the presence of existing infrastructure including transmission lines.

Visual Effects:*From Roads*

The line will be reasonably screened and separated from Sky High Road as it follows the Wairoa River. It will cross Sky High Road at right angles at a location where trees and topography help to restrict views.

However the line will be prominent from White Road and from the first section of Falls Road. Tower 39 is located to reduce impacts on a view toward the Hunuas from Falls Road.

From Hunua Village

The line will be largely screened from public places within Hunua village itself by the low ridge around the eastern side of the settlement, and the buildings and trees on this ridge. Views will be mainly restricted to properties on the periphery, including from the Hunua School grounds from where the line will be on lower ground some 380m to the east. The line will be prominent from Hunua Road as it descends the village's south-eastern outskirts, although the alignment crosses the road at right angles.

From Individual Properties

The line was assessed as having visual effects of moderate or greater impact on 4.7 houses per kilometre of line, compared to the average of 2.7 over the total length of the line, reflecting the close pattern of lifestyle settlement in the area, although the intensity of affected houses is less than the neighbouring sections to the north.

Of these properties:

From NOR document Part X section 8

APPENDIX 1: INVENTORY OF VISUAL EFFECTS ON HOUSES

An inventory of affected houses was compiled based on observations from public roads, aerial photos and topographic maps. More accurate assessments for each property would require individual visits to those properties. Similarly because observations were restricted to public roads it was not possible to make assessments of some houses, and other individual houses are likely to have been overlooked. Nevertheless, with those caveats it is considered it provided an assessment of the overall effects on properties within each section.

Factors taken into account in estimating degree of visual effect include distance from the line; distance and location of nearest towers where houses are relatively close to the line; house orientation; foreground screening by vegetation, buildings or local topography; the nature of the intervening landscape (e.g. extent of trees, low ridges, buildings, roads); the presence of any landscape backdrop; and the overall character and scale of the landscape.

The 'Very High' category includes houses close to the line (generally within approximately 150m) such that the line is likely to be a dominant element in the outlook from the house and its surroundings, regardless of factors such as house orientation and screening.

The 'High' category includes houses that are further from the line (generally 150m-500m) and which do not have specific mitigating factors. For instance the houses are likely to be orientated toward the line and have insufficient screening vegetation to significantly reduce the prominence of the line.

The 'Moderate' category includes houses further away again (generally 500m-100m), or houses in which orientation or existing screening is likely to significantly reduce visual effects.

For clarity, the relative degree of effect has been assessed without regard to the planned removal of the ARI-PAK A line, which instead has been treated as a mitigation measure. The OTA-WAK A, B & C lines, though, have been taken into account as part of the existing environment where appropriate.

The numbers of houses assessed as having moderate, high or very high effects is summarised for each section below. In order to enable comparison between sections of different lengths these figures are also expressed per km of line, and are graphically illustrated on the following chart.

		Length km	V high	High	Moderate	Total	V. High, High, Mod per Km
1	Whitford Valley	3.1*	4	7	11	22	7.1
2	Brookby Area	3.5	2	17	11	30	8.6
3	Ardmore Basin	5.3	6	13	21	40	7.5
4	Hunua Basin	6.4	13	8	9	30	4.7
5	Hunua to Lyons Rd	13.1	11	10	23	44	3.4
6	Lyons Rd to Kopuku	8.5	3	6	13	22	2.6
7	Kopuku to Te Hoe	29.5	11	36	33	80	2.7
8	Te Hoe to Flaxmill Rd	8.1	5	8	10	23	2.8
9	Flaxmill Rd to Tauhei Rd	8.4	2	8	17	27	3.2
10	Tauhei Rd to Chepmill Rd	20.4	10	23	38	71	3.5
11	Chepmill Rd to Nth of SH1	20.6	8	15	28	51	2.5
12	Nth of SH1 to Sth of Waikato	2.4	1	1	3	5	2.1
13	Sth of Waikato to Arapuni	11.4	7	8	15	30	2.6
14	Arapuni to Wiltsdown Rd	13.6	4	9	13	26	1.9
15	Kinleith	30.3	0	1	4	5	0.2
		184.6	87	170	249	506	2.7

* Between location of tower 5 and section 2

Figure: Section by Section Comparison of Visual Effects on Individual Houses

The following is the only visual assessment Impact figure presented for the Hunua area. There is nothing there that shows the visual impact of all 4 of the lines within our community.(Just this one with a couple of towers imposed in.)

From NOR documents Part X section 8 visual Impact assessment appendix 2 figure 7/ 15
 *****Because we have had to email this document we I have had to delete this photo refer nor documents*****

“It says in the above documentation that Similarly because observations were restricted to public roads it was not possible to make assessments of some houses, and other individual houses are likely to have been overlooked.”

This tells us that Transpowers’ visual Impact assessment is incomplete..We would respectfully suggest that as this is so important to us and our community this should be done for all homes within at least a 2km distance either side of the line.

For mitigation purposes

The option of undergrounding more of the overhead line and the use of less obtrusive monopoles..

Refer T/P effect of short cable sections pdf appendix_____

Pg 9

The chart shows that between 5 and 10 three km cable sections or between 2 and 4 ten km cable sections can be included in a 400kv overhead line before etc....

We believe that Hunua is an outstanding area and more sections of the line could be undergrounded or that monopoles could be used to help with the visual effects throughout our area.

Refer email that was sent to Minister David Parker appendix _____

It is an email referring to the www.eurocable.com website with relevant data on undergrounding..

Refer Transpower Response to EC request for Information (EC letter dated 12th Oct 05)
Appendix _____

For information on costings and information relevant to the RMA process.

We agree with the Hunua and Paparimu Valley Inc submission to the Board on the technical issue of whether a line of this size is required. The proposed 400kv when fully loaded to 5400mw will be capable of carrying the full peak load into Auckland without the existing lines or any new Auckland area generation..

We would suggest that the proposal has been over engineered.

It would also amount to serious concerns over Security of supply if a large magnitude earthquake were to hit our area with the Wairoa fault line with all lines being in close proximity. We have not found reports on how this would be handled if this event did happen. Question needs to be asked of transpower .What scale quake would break transmission to Auckland with the proposal and the existing lines passing through our area. This would affect Security of supply into Auckland.

If the proposal goes ahead.

We would with respect suggest that the visual impact and the accumulative effects of all lines through our area would justify the Hunua area being well placed for one or more forms of mitigation if the 400kv option proceeds. ie Monopoles and more undergrounding.

With respect most of the new renewables capacity seems to be projected to come from the South Island refer to the Electricity Commission transmission to enable renewables workshop slides and papers covering this issue.

This being the case it seems prudent to ask the question especially when you look at the AK-alt stg 11 analysis report why the new proposal is not HVDC for a new line. From the inter island hvdc pole links. We know there is a problem at the moment with one pole being shut down, but when you look at the whole picture instead of piecemeal it seems logical that a direct hvdc link into Auckland is warranted for the future. We would have the existing lines to gather in the new renewables from the central north island and a direct link with less losses and reduced carbon footprint via hvdc to bring up the project possible south island load.