BUNNYTHORPE–HAYWARDS CONDUCTOR REPLACEMENT
Major Capex Proposal

Attachment F
STAKEHOLDER ENGAGEMENT & SUMMARY OF SUBMISSIONS

Keeping the energy flowing

TRANSPOWER

Transpower New Zealand Limited The National Grid

1| Introduction

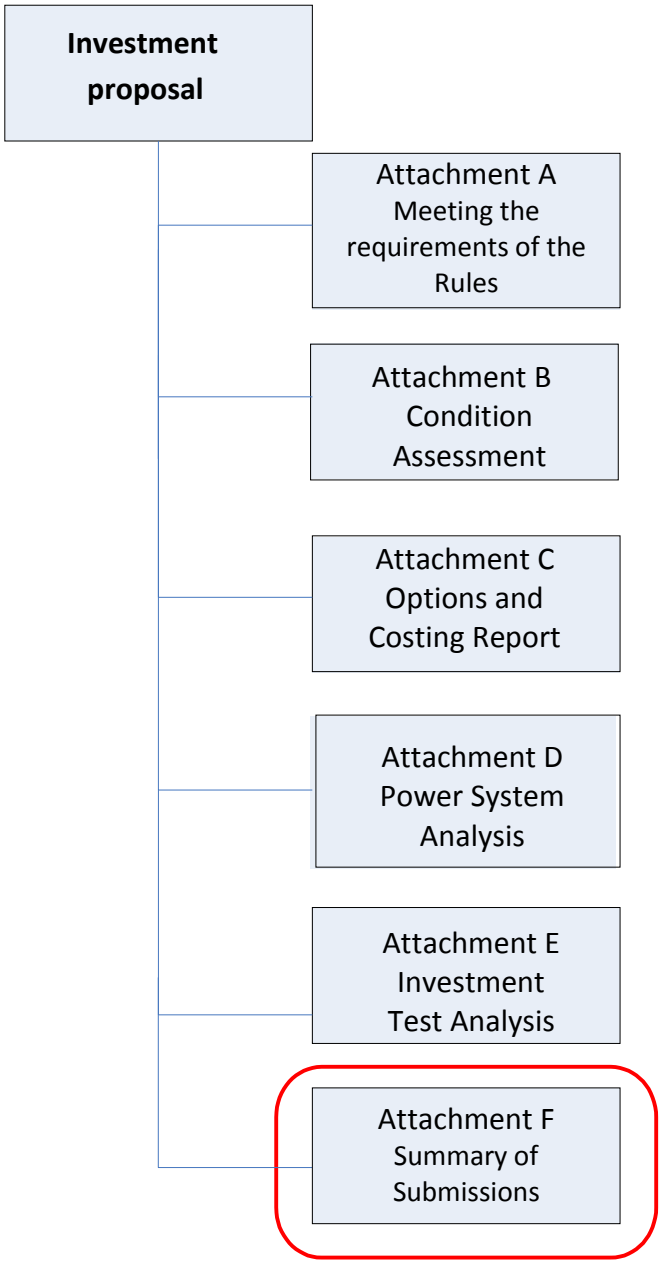
This document is the Stakeholder Engagement attachment for the Bunnythorpe–Haywards A and B lines conductor replacement investment proposal.

1.1 Purpose

The purpose of this document is to summarise stakeholder engagement information undertaken prior to submission of this investment proposal.

1.2 Document Structure

This report forms part of the Bunnythorpe–Haywards A and B lines conductor replacement investment proposal, as set out in the diagram below:



2| Stakeholder and Long List Consultation

We have engaged with both community and industry stakeholders on this project over a number of years.

Community Communications

As a project driven by the need to replace conductor that is near the end of life, our engagement has been with those people most affected by the work – landowners and key communities near the line, as set out in Table 2-1.

We advised key community stakeholders (such as councils and local MPs) and landowners with land under the existing lines of our investigation in August 2010.

Most interest in the project has been in the Kapiti Coast District Council region where approximately 2 km of the lines cross through the Waikanae urban area. We have held an open day in Paraparaumu and Waikanae and attended meetings with the Council and its representatives. We have also responded to questions on the nature and scope of the work.

Naturally, those communities closest to the line routes have expressed concerns over the impact of works on their properties and on their communities. Transpower has dedicated community programmes to assist with project delivery, and its presence in the community generally. A CommunityCare fund component will be included in this proposal, and will be needed to offset the likely disruption caused by the tower work and conductor replacement.

In advance of this work, Transpower has also used the Bunnythorpe–Haywards A and B lines as a focus for its first Greenline Partnership. Greenline partnerships establish long-term partnerships with regions where larger transmission projects are being undertaken. Local community-led environmental projects are selected, based on set criteria, and working with local councils and community groups, are delivered over a three-year period. We are in the second year of such work with the local councils along the length of the transmission lines, with work involving not only targeted funding of worthwhile community projects but Transpower volunteer time for such activities. This has positioned us well with local communities for this project to proceed.

Industry engagement

Long List Consultation

In August 2010 we published a draft “needs” report. We then released a Request for Information (RFI) for this project in November 2010. From this RFI, five submissions were received by the closing date:

- Major Electricity Users Group
- Contact Energy
- Energy Managers Association of New Zealand
- Genesis Energy
- Powerco

Most submitters supported the need for the investigation, and the approach and assumptions being used. One submitter considered that a higher weighting should be

given to generation that has not yet been committed. Another submitter questioned the demand forecast being used at the time and the sufficiency of that for the investment envisaged. This submitter and one other also suggested more work was required on non-transmission alternatives – particularly given the deferral value of the required investment.

Following receipt of feedback[1] we:

- considered and incorporated the feedback where appropriate
- further developed the short list options
- developed the economic approach
- analysed the results
- published a draft investment proposal for consultation

[1] Full details of the submissions can be found on Transpower's website: https://www.transpower.co.nz/projects/bunnythorpe-haywards-and-b-transmission-line-investigation/bunnythorpe-haywards-and-b-0

Table 2-1- Project Communications to date

Date	Activity
August/September 2010	Letter and introductory factsheet detailing the need for the investigation, the types of options being considered, and next steps. Sent to landowners, MPs, local council representatives. Project set up on Grid New Zealand.
November 2010	Issued RFI to industry participants
March 2011	Meetings with Mayor/CEO of Kapiti Coast District Council (KCDC) and offer to brief others through letter. Follow up letter to KCDC. Briefing of Federated Farmers.
April 2011	Second factsheet to landowners and community stakeholders reinforcing the need for the project and also setting out three options being considered, the process by which an option is chosen and next steps. Workshop with council officers of relevant councils (5 April).
5 May 2011	Information day at Paraparaumu and Waikanae libraries setting out the process to date, the process ahead and the options on the table. Kapiti area chosen due to the potential impact of construction work on traffic and land use.
May-September 2011	Continued briefings of key stakeholders – affected councils, MPs, community boards, NZTA.
October 2011	Issued consultation paper on our analysis and draft proposal.
November 2011	Submissions closed and summary published. (attached here)
December 2011	Grid Upgrade Plan submitted to Commerce Commission, including an Attachment showing how we have had regard to submissions
March 2012	Agreed with the Commission to undertake further work to reduce uncertainty in the cost estimates.
April 2012/ August 2013	Detailed work undertaken to reduce uncertainty in costs of conductor replacement options.
September 2013	Publish revised investment proposal for consultation, using the Commerce Commission's Capex IM framework rather than the former Electricity Commission regime.
October 2013	Submissions closed
November 2013	Submit MCP
November 2013	Publish Summary of Submissions with MCP

3 Short list consultation

Industry engagement

Short list consultation – Major Capex Proposal

In September 2013 we published a draft major capex proposal detailing:

- The need for investment to replace the existing conductors on the Bunnythorpe–Haywards A and B lines due to their condition
- The options we had considered for their replacement
- Our analysis of the cost and benefits of the options
- Our conclusion that replacing the existing conductors with a Zebra conductor at 75 ^{o}C is the preferred option.

In the document we asked four questions:

- *Do you consider the short list of options to be reasonable?*
- *Is our application of the Investment Test reasonable?*
- *Is our conductor replacement proposal reasonably robust to sensitivities?*
- *Overall, is our conductor replacement proposal reasonable?*

Three submissions were received.

- Contact Energy Limited
- Meridian Energy Limited
- MEUG (Major Electricity Users' Group)

There was support for the proposal from all submitters, but a common theme of the generators' submissions was whether the proposed option provided a sufficient increase in capacity to future proof for growth.

Our studies showed that, using the 2010 SoO scenarios, our proposal provides adequate capacity for the future by providing an additional 47 MVA capacity over and above the existing conductor and there are negligible constraints in the future with the proposed Zebra at 75°C conductor.

Contact's submission noted Transpower has been very clear on the need to replace conductors on the Bunnythorpe-Haywards A and B 220kV lines by 2020 due to their deteriorating condition, and Contact agrees with all aspects of the proposal. Contact supports any proposal that will increase the AC grid south transfer capability from Bunnythorpe south for use during a dry year scenario.

Meridian supported the need for replacement but questioned that the proposed capacity increase did not go far enough in increasing capacity. Given the impact on landowners, local communities, and the wholesale market of carrying out upgrade work, Meridian considers it would be sensible for more provision to be made for future upgrades at this point in time, in order to minimise any future disruption.

MEUG noted that SDDP is a well-known model and agreed that it was a good tool to estimate system and loss benefits as has been done in this proposal. They also note that the updating of the 2010 Statement of Opportunities (SoO) for updated Market Development Scenarios (MDS) was reasonable. MEUG will rely on the Commerce Commission to assess the reasonableness of the proposal costs.

Following receipt of feedback[2] we:

- received feedback on the draft proposal;
- made sure the Major Capex Proposal accommodates any arguments referred to in the submissions; and
- prepared and submitted a Major Capex Proposal.

[2] Full details of the submissions can be found on Transpower's website: https://www.transpower.co.nz/projects/bunnythorpe-haywards-and-b-transmission-line-investigation/bunnythorpe-haywards-and-b-0

4| Short List - Stakeholder submissions

The submissions received from our Short List consultation supported our proposal. They also noted some comments which are summarised below in Table 3-1 along with our consideration of their comments.

Table 3-1 - Key points raised from Consultation

Comment	Response
Contact notes that the Power System Analysis Report indicates the present south transfer limit is around 1050 MW under a typical wind scenario. Have these limits and the methodology been confirmed with the system operator as this effects the relative gains of the short list options: Namely; a) Does the transfer account for the Mangamaire-Masterton-1 circuit split as this is required to realise the full thermal transfer capability? b) The 1050 MW thermal limit for the existing conductor under a typical wind scenario is close to the default low voltage transfer limit. Additional reactive compensation and an improved load power factor can mean that transfer may be limited thermally in the future. The additional 72 MW gain using Zebra conductor at 85 ^{o}C may have a material impact under this scenario.	We believe Contact are referring to the mormograph on page 4 of the Power Systems Analysis report where the constraint line of the existing BPE-HAY A and B conductors intersects with the y-axis. This is a theoretical operating point and is unlikely to ever occur in reality. It is purely a thermal limit and does not account for voltage stability or temporary overvoltage issues at all. Additionally the y-axis intersection point assumes that Wellington regional demand is 0MW. These momographs are useful in that they graphically demonstrate how different transmission asset capacities can affect constraint exposures. However the value of the different transmission capacity is always assessed using SDDP, as the momograph is only a snapshot of many generation and demand variables power system wide. In the Figure 1 momograph, HVDC transfer and Wellington demand are varied while all other power system variables are held constant. Transpower refers Contact to the comments at the top of page 7 of the Power Systems Analysis report where the report includes some aspect of operational reality into the HVDC south transfer discussion. Whether the south transfer voltage stability constraint is “real” or not is debatable. We have done the economic studies conservatively assuming that the thermal constraint is real, as the System Operator does. Studies are planned to establish what the HVDC limits actually are. We did not model the Mangamaire-Masterston split, as the circuits are not normally split. The SDDP results and our Investment Test analysis did not find sufficient benefits to increase the capacity beyond Zebra at 75^{o}C using a range of potential future states of the electricity system.

Contact asked whether the option of reducing the seven year delivery has been investigated	Due to the length of the lines (together about 240 km), we are planning a seven year delivery programme to replace the conductor, starting with planning in 2013 and aiming for completion in 2020. This programme utilises available outage windows, minimises disruption to the electricity market, and allows us to replace the most corroded conductor first. In addition, finding additional human resource to complete this work in a shorter period could be problematic.
Meridian asked that in finalising the proposal, that Transpower also give consideration to providing for any future upgrades of the Bunnythorpe-Haywards lines. The expansion of HVDC capacity, and the possibility of the Tiwai aluminium smelter closing at some point in the future, may mean that even an upgraded line could become constrained in northwards flow. Given the impact on landowners, local communities, and the wholesale market of carrying out upgrade work, Meridian considers it would be sensible to consider whether provisions could be made for future upgrades at this point in time, in order to minimise and future disruption.	Transpower supports the approach of minimising disruption to landowners, local communities and the electricity market. However, we must be prudent in what upgrades we do, if any, as this is a real cost on the end consumer. The Investment Test uses market development scenarios which forecast five different future states of the electricity system. We found benefit in increasing capacity to Zebra conductor at 75 ^{o}C, but did not find the benefit to justify additional cost to increase to Zebra strung at 85 ^{o}C. Zebra conductor operating at 75 ^{o}C will only be a constraint once the HVDC link has a 1400MW transfer capacity and then only in few circumstances (at extremely low Wellington load and with local Wellington generation operating at maximum there could up to a 30MW constraint). At this point, we are not expecting a 1400MW HVDC to become economic until after 2030.

MEUG is unsure about including qualitative assessments for "consumer benefits through enhanced competition". This claimed benefit will always favour larger capacity lines. Isn't there a risk of double counting the effect on expected energy market SRMC through quantified estimated savings in losses and this qualitative factor? MEUG does not believe "aligns long term grid development" should be a qualitative factor to compare options. It's how each option might change the total delivered benefits of lower losses and improved system security that count; that may or may not align with Transpower's commercial objectives.	What we are referring to here is competition benefits where an increased transfer capacity will deliver greater competition and in theory nodal prices closer to the SRMC for consumers. We agree that consumer benefits through enhanced competition will therefore favour larger capacity lines in this instance. Long term grid development refers to efficient and effective decisions that align with our long term view of the grid.. Part of our long-term view of where the grid might be in the future includes a transfer capability of 1400MW on the HVDC. Greater capacity on the Bunnythorpe-Haywards lines is consistent with that view. We have clarified our wording in the proposal.
MEUG makes reference to the $3m trial for conductor types and technologies. An outcome [MEUG] wish to avoid is that Transpower will implement new conductor types and technologies and be rewarded for such innovation under the IPP to be reset from 1st April 2015 even though the risk of proving those options was borne fully by customers under this proposal.	Transpower receives a 'ring-fenced' amount of $2m per year to investigate improved technologies and innovation, but this does not fund the capital implementation to test these technologies and innovation which is what is being requested here. We do not believe that innovations resulting from the conductor trial would qualify reward under the IPP.