



1 October 2021

Submissions
Transpower

By email: nzgp@transpower.co.nz

Net Zero Grid Pathways 1: Major Capex Project (Staged) Investigation

Meridian welcomes the opportunity to submit on Transpower's long-list consultation for the NZGP1 Major Capex Project (Staged) Investigation.

Appendix 1 of this submission addresses Transpower's consultation questions. Appendix 2 contains confidential information in response to Transpower's Request for Information from proponents of non-transmission solutions.

Meridian agrees that electricity demand will increase as we transition off fossil-fuel based energy and that renewable generation will increase to meet this demand growth.

We see the benefits of a long-term transmission plan, showing how the transmission system will be developed between now and 2050. This will inform generation and major load investment decisions. We understand that phase 1 will look out to 2035 and that Transpower has identified the key capacity constraints in future as:

- the Cook Strait HVDC link;
- the 220kV grid between Bunnythorpe and Whakamaru; and
- the 220kV grid around the Wairakei Ring.

Meridian agrees that investment will be needed to relieve these constraints and enable efficient dispatch and reliable supply to meet future demand growth. Meridian considers the draft long list of options to be broadly reasonable options to address the investment need and worthy of further assessment.

As a significant beneficiary of many of the potential options, we understand that Meridian may be allocated a significant portion of benefit-based charges for any investment under the proposed new Transmission Pricing Methodology (TPM). Meridian therefore has a strong interest in identifying the least cost solutions. We support Transpower's intention to consult (at the same time as short list consultation) on indicative pricing under the proposed TPM for any preferred options identified through this investigation.

We agree with Transpower that there are a several uncertainties that will have a significant impact on the assessment of options. Treating these uncertainties as sensitivity scenarios and weighting the probabilities of each closer to the time of any investment decision seems like a reasonable approach. The Tiwai closure date and any replacement demand in Southland has rightly been identified as a sensitivity scenario.

However, Meridian considers the peaking and dry year reserve options in the sensitivity scenarios to be too narrow. Meridian and Contact Energy's *Southern Green Hydrogen* project has the potential to address dry year risk and should be explicitly considered amongst the other peak and dry year reserve sensitivity scenarios. Detailed modelling has been undertaken by Concept Consulting to assess the benefits that a flexibly operated green hydrogen facility could provide towards solving New Zealand's dry year flexibility (and wind and solar intermittency) challenges. The benefits of flexible hydrogen production were assessed relative to a range of alternatives. The details of this work will soon be made public. In summary, the results of this analysis are that:

- all the options assessed can deliver equivalent security of supply and carbon emission outcomes – the key differentiator is cost; and
- of all the options, flexible demand response from a hydrogen production facility or retention of some gas peakers, are the lowest cost options for New Zealand to manage dry year risk.

Given the potential of flexible hydrogen production, Meridian considers it critical that Transpower's sensitivity scenarios include a scenario with large scale flexible demand response in Southland to manage dry year risk. Meridian is investing in making this scenario a reality and at this stage we are optimistic regarding the prospects of success. The project has attracted more than 80 responses through the registration of interest process. We would welcome the opportunity to engage further with Transpower on this subject.

Please contact me if you have any queries regarding this submission.

Yours sincerely

A handwritten signature in blue ink, consisting of a large, stylized 'S' followed by a horizontal line and a small flourish.

Sam Fleming
Manager Regulatory and Government Relations

Appendix 1: Responses to consultation questions

Consultation question		Meridian response
1.	Is our need description for this investigation reasonable?	Yes.
2.	Should Transpower be looking to enable investment in new generation and demand ahead of when that generation or demand is confirmed?	Yes, acknowledging that forecasting new generation and demand growth is inherently challenging and assumptions will need to be thoroughly tested and subject to sensitivity testing for a range of scenarios.
3.	Are our long-list options (B1 and B2 in Table 3.1) to meet the overall need for this investigation, reasonable?	It is reasonable to look at these options in greater detail, but they are likely to be higher cost than upgrades of existing assets.
4.	Are our long-list options for enhancing capacity of the HVDC reasonable?	Yes.
5.	Are our long-list options for enhancing capacity of the CNI 220kV corridor reasonable?	Yes, however, at this early stage we are not convinced that the battery option (B1) would provide long term transmission requirements to support renewable developments in the lower North Island and South Island.
6.	Are our long-list options for enhancing capacity of the Wairakei Ring reasonable?	Yes.
7.	Are there other criteria we should consider when evaluating our long- list of options and reducing it to a short-list?	The criteria appear reasonable.
8.	Is our process for developing relevant scenarios reasonable?	Yes.
9.	Are our proposed NZGP1 demand forecasts reasonable?	Yes, they appear to cover the full range of demand uncertainty.
10.	Is our proposal to identify base scenarios and sensitivity scenarios reasonable?	Yes.

11.	Is our process for identifying potential generation scenarios reasonable?	Yes.
12.	Is our approach to determining an appropriate number of scenarios reasonable?	Yes.
13.	Is our choice of scenarios to include in our analysis reasonable?	Yes.
14.	Is our set of sensitivity scenarios reasonable?	<p>While Transpower has separately identified a Southland Tiwai replacement demand scenario. The potential of flexible hydrogen production to manage dry year risk should also be acknowledged in the sensitivity scenarios.</p> <p>See the body of this submission for further information about Meridian and Contact Energy's <i>Southern Green Hydrogen</i> project.</p>
15.	Is our approach to determining the weighting for each scenario appropriate?	The approach seems broadly reasonable.
16.	Would interested parties support the use of a discount rate for Investment Test analysis, closer to Transpower's current WACC?	Yes.
17.	Are there any other costs or benefits we should consider in our Investment Test analysis?	None that we have identified at this time.