



23 August 2024

Transpower
By email: grid.investments@transpower.co.nz

Cook Strait HVDC Submarine Cable Replacement and Enhancement

Meridian appreciates the update on Transpower's current investigation to replace the three existing HVDC submarine cables. Meridian also welcomes the opportunity to comment on the proposed replacement of the HVDC cables and the option to upgrade the HVDC link's capacity to 1400 MW.

Meridian agrees that the HVDC link plays a vital role in New Zealand's power system and fulfils many roles that benefit consumers, including:

- enabling diversity of electricity supply;
- promoting supply competition;
- helping to supply the North Island with flexible hydro generation which will become increasingly important for firming of North Island intermittent generation in future;
- helping to supply the South Island during dry years;
- enabling a national reserves market; and
- enabling frequency keeping shared between islands.

Meridian strongly supports timely investment to ensure the HVDC equipment remains fit for purpose, maintaining the high availability and reliability expected from this critical infrastructure. At a minimum that would mean replacement of the existing submarine cables in the early 2030s to minimise failure risk. We support Transpower acting now and planning to meet that deadline. The worst-case scenario for New Zealand consumers would be to

lose the HVDC link due to end-of-life factors and to then have an extended period without service due to the repair or replacement timeframes.

In addition to timely investment to maintain the availability and reliability of the HVDC link, Meridian agrees that there may be an opportunity to increase HVDC capacity to 1400 MW at the same time, given the cost and lead times for a cable-laying ship are material and the additional costs of enhancement rather than straight replacement are likely to be outweighed by the benefits of that increased capacity. We understand this is a time-limited window of opportunity since the costs to increase HVDC capacity outside of the existing replacement project would likely be considerably (and perhaps prohibitively) higher.

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Meridian's support for an enhancement to 1400MW of HVDC capacity is subject to developing a full understanding of the costs and benefits of the options, including:

- the costs of various options for replacing the cables and how those costs compare to the cost of cable enhancements;
- the degree of confidence regarding the operating capabilities of each option, for example whether non-thermal HVDC constraints such as voltage constraints or reserve constraints might mean enhanced capacity is less than 1400MW unless other investments occur to overcome those constraints;
- confirmation and publication of further details of the modelled benefits to consumers from enhancing transfer capacity from 1200MW to 1400MW if those capacities are realistic (by Transpower's provisional conservative estimate between \$100 to \$300 million); and
- estimated transmission charges associated with the benefit-based investment under the Transmission Pricing Methodology.

Developing this understanding will also be key for any Transpower investment decision and the Commerce Commission's decision on any major capex proposal. Therefore, Meridian is pleased to see the planned project milestones including evaluation of costs and benefits and formal consultation later in 2024 and in early 2025.

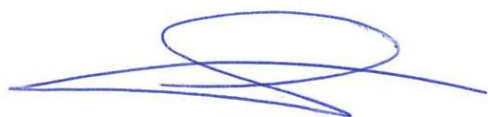
Meridian has not undertaken its own detailed modelling on the consumer benefits of the enhanced 1400MW HVDC capacity, but we agree in principle that increasing the transfer capacity would likely reduce reserve costs and enable the HVDC to play a key part in firming intermittent generation in the North Island. Given the magnitude of intermittent generation

investigations in the North Island market it is likely that consumers would benefit from greater HVDC capacity. In addition, investing to increase HVDC capacity and reliability could help to unlock further renewable generation development opportunities in the South Island. It also seems plausible to Meridian that increased southward transfer capacity could benefit consumers given higher volumes of North Island intermittent generation could offset hydro generation at times to support more effective storage management and reduce dry year risk. Meridian encourages Transpower to consider the potential benefits of enhanced southward transfer in its modelling (to the extent it has not already done so).

Meridian looks forward to Transpower progressing this project.

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

Nāku noa, nā

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the left.

Sam Fleming
Manager Regulatory and Government Relations