

Via email: nzgp@transpower.co.nz

15 August 2022

Net Zero Grid Pathways 1 (NZGP1): Major Capex Project (staged) Investigation

Mercury welcomes the opportunity to provide feedback on Transpower's consultation *Net Zero Grid Pathways 1: Major Capex Project (staged) Investigation*, 30 June 2022 (**Shortlist Consultation**).

Transpower is seeking feedback on its evaluation of investment options that would enable the efficient dispatch of new generation and a reliable supply for future demand growth over the interconnected grid. The Shortlist Consultation sets out its preferred option that it anticipates it will submit as a Major Capex Proposal (**MCP**) to the Commerce Commission later this year.

Mercury supports the approach in general that Transpower has taken to evaluating investment options and the selection of the preferred option. In our view it is important that Transpower takes a no-regrets approach that would enable the efficient dispatch of significant new generation to meet future significant demand growth over the interconnected grid. This approach is broadly consistent with Mercury's response to Transpower's NZGP1, longlist consultation document.

Mercury's present submission focuses on the following aspects of the proposed NZGP1 Stage 1 MCP and the process looking forward:

- Propose that NZGP1 Stage 1 MCP include the project to add Cook Strait cable capacity
- Concern regarding Transpower's assessment of potential value and scope of NTS
- Ensure that consideration is given to network resilience when considering future CNI projects

Mercury expands on these points in the following discussion with responses to Transpower's consultation questions set out in the attached annex.

Propose that NZGP1 Stage 1 MCP include the project to add Cook Strait cable capacity

Transpower proposes to include the project to add Cook Strait cable capacity in a separate later MCP covering Stage 2 projects.

Instead of including this project in a later MCP, Mercury proposes that this project should be included in NZGP1 Stage 1 MCP, because:

- The benefits derived from the installation of reactive plant at Haywards and the Stage 1 CNI projects are highly dependent on the deployment of the additional Cook Strait cable capacity; and
- Mercury understands that Transpower has progressed the design and costing the additional Cook Strait cable capacity, such as by having sought pricing and timing information from the market.

Mercury's concern with excluding the additional Cook Strait cable from the Stage 1 MCP is that the MCP would only then present a partial view of the benefits attributable to other projects included in the MCP. Transpower would need to note that the full scope of the benefits of the installation of reactive plant at Haywards and the Stage 1 CNI projects would be contingent on a planned deployment of the additional Cook Strait cable capacity. This may lead to the

situation where the Commission considers that they do not have sufficient information to make a decision regarding the Stage 1 MCP which may then lead to delays.

As noted above, Mercury understands that Transpower has already made significant progress on the design and costing of the additional cable. If this is correct, then Transpower should consider including this information in the Stage 1 MCP in order to present a more complete picture of the costs and benefits of the projects to the Commerce Commission and thereby mitigate the risk of unnecessary delays.

Value and scope of NTS solutions

Transpower has proposed that *it would likely be better to seek Commission approval for a project without NTS, but with an undertaking to explore the use of NTS at the relevant time.*

While Mercury agrees in general with Transpower's approach for excluding NTS options from the present MCP and to explore their use at a relevant time in the future, Mercury is concerned that Transpower may understate the value of NTS options going forward.

Following Transpower's long-list RFI consultation, Transpower concluded that due to the size and breath of the grid backbone, it is unlikely an NTS would be a viable alternative to the projects included the proposed MCP. Transpower states that the smallest increment in transmission capacity under consideration is around 200MW, which in Transpower's view exceeds what most NTS providers would consider, and exceeds the aggregated interest shown to the long-list RFI.

Mercury considers that Transpower should not draw a conclusion that NTS are not of sufficient scale from a lack of responses to the previous long-list RFI. One possible reason for this lack of responses may be due to the high-level nature of the previous RFI. In contrast, the WUNI voltage support RFP gained greater engagement because, Mercury suggests, it specified much more targeted, detailed requirements.

An NTS has the potential to deliver value and address a number of challenges. It may substitute for, or complement, thermal upgrades. It may deliver capacity in a shorter timeframe than is possible for some transmission upgrades. It may provide capacity needed to open up outage windows that are required for transmission upgrades. It may, as part of special protection scheme, be able to respond to a direct signal that particular circuits have tripped with a rapid and known response rather than a more generalised response to contingencies: Hornsdale Power Reserve does this in South Australia, providing a specific response on the loss of the interconnector with Victoria.

Ensure consideration is given to CNI network resilience for future projects

The CNI projects included in the Shortlist Consultation are tactical and focused on enhancing capacity along the existing CNI transmission route.

While Mercury agrees with including these projects in the present MCP, Mercury suggests that for the longer term Transpower should consider network resilience benefits that introducing or enhancing alternative transmission route options to the central North Island would bring.

New Zealand will become more reliant on reliable and resilient generation and transmission of electricity with the growth in electrification and decarbonisation of the economy. In particular, more weight should be given to enhancing network resilience over the long term because:

- the national grid will be required to meet an ever-increasing share of the total economy's energy needs;
- key parts of the transmission corridor are concentrated in areas with significant natural hazards; and
- extreme weather events are expected to increase.

As planning and building alternative transmission routes necessitates long lead times, Mercury considers that it would important to start addressing these challenges within Transpower's NZGP.



For instance, regarding the Wairakei Ring capacity enhancement, we are concerned about what comes after the TTUs are exhausted. Mercury suggests that the preparedness project that is to investigate a new WRK-WKM line or replacing the WRK-WKM A line should be given priority as these options involve long lead times.

Mercury looks forward to engaging further with Transpower on the NZGP projects.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Tim Thompson', with a stylized, flowing script.

Tim Thompson
Head of Wholesale Markets



Annex: Consultation Questions and Mercury Response

Consultation Question	Mercury Response
Do you agree with our staged approach to this major capital investment programme? (section 1.2)	Mercury agrees in general with the staged approach, with the inclusion in the present MCP of the project to add Cook Strait cable capacity. This point is addressed in more detail above in the cover letter.
Is our approach to NTS reasonable? (section 2.2)	While Mercury agrees in general with Transpower's approach for excluding NTS options from the present MCP and to explore their use at a relevant time in the future, Mercury is concerned that Transpower may understate the value of NTS options going forward. Mercury's concerns are explained above in the cover letter.
Is our reduced list of options for enhancing capacity of the HVDC reasonable? (section 3.2)	Mercury agrees in general with the reduced options list. In addition, we note that, looking forward, a battery-based solution as part of a special protection scheme may enhance the resilience to the HVDC link.
Is our reduced list of options for enhancing capacity of the CNI 220 kV corridor reasonable? (section 3.3)	Mercury agrees in general with the reduced options list. In addition, we note that, looking forward, Mercury suggests that Transpower should consider enhancing or introducing alternative transmission route options around the central North Island that would enhance overall network resilience. This point is addressed in more detail above in the cover letter.
Is our reduced list of options for enhancing capacity of the Wairakei Ring reasonable? (section 3.4)	Mercury agrees in general with the reduced options list. However, looking forward, we are concerned about what comes after the TTU is exhausted. The preparedness project that is to investigate a new WRK-WKM line or replacing the WRK-WKM A line should be given priority as these options involve long lead times. We also request that Transpower elaborate on its point that the capacity released by the WRK-WKM C TTU is small.
Are our scenario weighting sets reasonable? (section 4.31)	The scenario weighting set seem reasonable for the purpose of meeting requirement specified in Schedule D, Division 2 clause D2 (1) of the Capex IM.
Is our shortlist of HVDC and CNI options reasonable? (section 4.52)	Yes, with the inclusion in the present MCP of the project to add Cook Strait cable capacity. This point is addressed in more detail above in the cover letter.
Is our shortlist of Wairakei Ring options reasonable? (section 4.53)	In general, yes. Note our observation in Q5 above about preparedness for post-TTU works.
Is our choice of the preferred option reasonable? (section 4.56)	In general, yes with the inclusion in the present MCP of the project to add Cook Strait cable capacity. This point is addressed in more detail above in the cover letter.
Is our conclusion that upgrading existing assets is more economic than bypassing the existing grid reasonable? (section 4.55)	In general, yes.
Do you agree that our choice of preferred option is robust against sensitivity analysis? (section 4.6)	In general, yes.

