Transpower
By email: demandforecasting@transpower.co.nz

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Draft EDGS 2019 variations consultation

Mercury welcomes the opportunity to submit on Transpower's consultation paper on the Draft EDGS 2019 Variations as part of the Net Zero Grid Pathways and Accessing Lower South Island Renewables projects. Mercury appreciates Transpower's efforts to consult with the industry on this update.

Clear need for electrification of economy

Several recent reports have outlined the clear need for New Zealand's economy to electrify, most notably the Climate Change Commission's 2021 Draft Advice to the Government. Electricity is expected to be the fuel for the majority, if not all, of New Zealand's light transport fleet by 2050. This, combined with displacement of fossil fuels by electricity for a large proportion of industry process heat, will add significant demand for new generation and transmission investments. Given the long lead time required to plan for and build new transmission assets Transpower is right to ensure the key inputs it uses are as up to date as possible.

Update EDGS for latest information

Since Transpower published its Draft EDGS report new information regarding the future outlook for electricity has been released, as briefly outlined below. Though we would typically prefer a consultative approach Mercury would encourage Transpower to update its inputs automatically for non-controversial amendments in light of this type of new information and consult on issues which are more material or for which Transpower must make judgment decisions.

Mercury recommends that Transpower updates its variations to the EDGS using the most up to date economic and electricity demand data, government policy announcements and the Climate Change Commission's 2021 Draft Advice. We note that the latest economic data for New Zealand has been more positive than initially expected following on from 2020's lockdowns for Covid-19. Base electricity demand for 2020 also largely reverted to pre-lockdown levels. The government has recently announced plans to electrify its fleet by 2025, impose emissions standards on imported vehicles, ban public transport operators from buying high-emitting buses from 2025 and require the country's entire bus fleet to be decarbonised by 2035. Furthermore, the Climate Change Commission's draft advice, if accepted and acted on by the Government, is likely to result in an even higher proportion of transport electrification by 2050.

More positive economic and base demand data will increase the baseline starting point and additional transport electrification as described above will likely add to the demand growth rates under almost all scenarios.

Additional relevant information Transpower should ensure is reflected in all of its scenarios is the Tiwai smelter's latest announcement as well as Contact's announcement that it will progress with a new generation project at Tauhara and Meridian at Harapaki. Mercury expects the downside sensitivities of Tiwai closure in the Draft EDGS are now unrealistic.

Mercury also suggests that the carbon price assumptions used by Transpower should be reconsidered, particularly in light of the Climate Change Commission's and international modelling. For reference the World Bank has

suggested by 2030 carbon prices would need to be between US$50-100/tonne. This price range is above all of Transpower's assumptions for 2050 (with the exclusion of the Environmental scenario).

Yours sincerely,

John Bright
Regulatory Strategist

Appendix 1. Responses to Consultation Questions

#	Question	Mercury response
1	Do you agree that EDGS 2019 need to be reviewed for the purposes of our ASILR and NZGP projects?	Yes, Mercury agrees with the need for a review.
2	Is it reasonable to consider the demand and supply scenarios separately?	Yes.
3	Are our assumptions in regard to Tiwai closure reasonable: a) Tiwai will close August 2024 b) We will include August 2021 and August 2026 as potential sensitivities c) Tiwai closure will not be phased. It will fully close on the assumed closure date	Mercury notes Transpower's paper was released prior to the most recent announcement from the smelter regarding its future operations. We note the assumptions should be updated to reflect this announcement, particularly the possible end date and sensitivities. In Mercury's view all of the assumptions should now assume longer dated operations for the smelter.
4	Are our assumptions in regard to the effect COVID-19 may have on electricity demand reasonable?	Mercury notes the economic assumptions used should be updated for the latest possible economic data and base demand figures which in our view are more optimistic than those currently used.
5	Are our base demand growth assumptions reasonable variations of the EDGS 2019 assumptions?	Yes, these seem reasonable.
6	Are our proposed industrial energy demand variations reasonable: • A reduction of 567 GWh (approximately 20%) in existing industrial demand in the Global and Environmental scenarios • The inclusion of two sensitivities for new industrial load at Tiwai and in Auckland, to be considered as relevant in our analyses.	Yes, these seem reasonable.
7	Are our proposed process heat electrification demand variations, as shown in Figure 5 reasonable?	Yes, these seem reasonable.
8	Are our proposed electric vehicle energy demand variations, as shown in Figure 6, reasonable?	The government has recently announced plans to electrify its fleet by 2025, impose emissions standards on imported vehicles, ban public transport operators from buying high-emitting buses from 2025 and require the country's entire bus fleet to be decarbonised by 2035. Furthermore, the Climate Change Commission's draft advice, if accepted and acted on by the Government, is likely to result in an even higher proportion of transport electrification by 2050. This will likely add to the demand assumptions under all scenarios.
9	Are our proposed rooftop solar PV variations, as shown in 7, reasonable?	Yes, these seem reasonable but we note these could be significantly affected by changes to distribution pricing favouring capacity charges.
10	Are our proposed EDGS 2019 variations for energy demand reasonable?	Yes, these seem reasonable.
11	Are our assumptions re the level of "smartness"	Yes, these seem reasonable but we note these

	available for peak demand shaving reasonable?	could be drastically altered depending on the trajectory distribution pricing and industry regulations governing distributed energy resources.
12	Are our draft peak demand EDGS 2019 variations reasonable?	Yes, these seem reasonable.
13	Are our assumptions about gas price and availability reasonable?	No, Mercury does not agree with the assumptions made for gas prices. In particular we do not expect it would be reasonable to assume a flat gas price of $6.19/GJ to 2050. In Mercury's view we would expect the price of gas to increase in line with carbon prices and we would refer Transpower to the Climate Change Commission's recent draft report for a more realistic carbon price path.
14	Should grid-scale batteries be included on the generation stack and is our approach of including 100 MW batteries at a range of locations appropriate?	Yes, these assumptions seem reasonable.
15	Is our proposed approach whereby a pre-model is used to steer the technology mix in developing generation technology-biased supply scenarios reasonable?	Yes, these assumptions seem reasonable.
16	Is our proposed approach whereby a relevant mix of demand and energy supply scenarios is determined for each investigation reasonable?	Yes, these assumptions seem reasonable.
17	Is our proposed approach whereby a relevant mix of demand, energy supply and peak/dry year reserve supply scenarios is determined for each investigation reasonable?	Yes, these assumptions seem reasonable. However, we are not sure if Lake Onslow should be explicitly included. The NZ Battery project may ultimately recommend a solution or set of solutions to the "dry year" problem that differ from the specific solution that Lake Onslow represents and therefore Transpower's approach should attempt to reflect this.
18	Is our proposed approach to determining the scenario combinations to be considered in investigations reasonable? Are the principles we have developed reasonable?	Yes, these assumptions seem reasonable.
19	Is it reasonable to assume that our EDGS 2019 variations are no longer equally weighted? Is our proposed approach to dealing with unequal weightings reasonable?	Yes, these assumptions seem reasonable.