Submission by

to

Transpower

on the

HVDC Link Upgrade Programme

20 June 2025

HVDC Link Upgrade Programme

– SUBMISSION BY BUSINESSNZ ENERGY COUNCIL—

Introduction

1. BusinessNZ Energy Council (BEC)[1] is pleased to have the opportunity to provide feedback on Transpower's short-list consultation titled 'HVDC Link Upgrade Programme'.

2. BEC represents a diverse array of leading energy-sector businesses, government bodies, and research organisations dedicated to creating a sustainable, equitable, and secure energy future.

3. As a brand of BusinessNZ, New Zealand's largest business advocacy organisation, we represent the World Energy Council in New Zealand, aiming to shape better outcomes for our wider energy system both locally and globally.

4. With this work Transpower aims to extend the lifespan of the HVDC cable connecting the North and South Islands and to future ready it for the expected increases in electrification.

5. BEC supports the preferred option presented by Transpower, option 3, as it will best prepare New Zealand's electricity sector moving forward.

6. The investment plan laid out by Transpower will provide not only an economic return on investment but will also increase security and reliability of supply throughout New Zealand. It is essential to maintain a strong, flexible and fair energy system.

Key Recommendations for Transpower and the Government

- BEC advises not to move forward with option 1 or 2 as they will see New Zealand either lose connection of electricity between the North and South Island or will underprepare New Zealand for the future of electricity demand.

- BEC supports Transpower's preferred option, option 3, as it will best prepare New Zealand for a future which promises increased electrification of transport and industry.

- Ensure that upgrades to the HVDC cable link are accompanied by upgrades to the North Islands wider grid to ensure that the extra capacity can be absorbed without stability problems.

General discussion

7. New Zealand's geography has meant that different sources of electricity generation are spread out across the country. In the South Island large glacial lakes have facilitated the

[1] More about BEC in APPENDIX One

construction of hydro dams while the North Island has been blessed with natural gas reserves and geothermal resources.

8. Transpower rightly points out that when hydro lake levels in the South Island are high, the HVDC link can bring electricity in bulk to the North Island to lower prices. The inverse is true for when hydro lake levels are low as then the link can transfer low-cost electricity to the South Island.

9. Due to this ability to balance demand and supply between the two Islands the HVDC link is critical infrastructure for ensuring power availability, keeping prices lower and supply secure.

10. However, by 2031, the current HVDC infrastructure will reach the end of its 40-year design life. Without investment in a replacement, we face major outages and long-term supply insecurity.

11. Transpower has identified the parts that need upgrading as: the undersea cables across the Cook Strait, the cable termination stations that connect the underseas cables to overhead lines, and the control system that runs the link.

12. Upgrades to these parts should allow the link to continue effective operation through the 2030s, 2040s and beyond.

13. Transpower has considered three potential options for the future of the HVDC link, those being: 1) no investment, 2) like-for-like replacement, and 3) replacement with increased capacity in the underseas cables.

14. Transpower's preferred option is option 3 and **BEC also supports this option**.

15. Option 1) for BEC is a non-starter as no investment in the HVDC link will effectively cut the North and South Islands off from each other by the 2030's. This would severely negatively impact the well-being of New Zealand households and businesses.

16. Option 2) holds more merit as it would allow the HVDC link to continue to operate as it currently does. However, it is clear that for New Zealand to meet its net-zero by 2050 goal large scale electrification will occur which will coincide with additional capacity needed in the HVDC link cable.

17. Current capacity is at a maximum of 1200 MW in northward flow and 750 MW in southward.

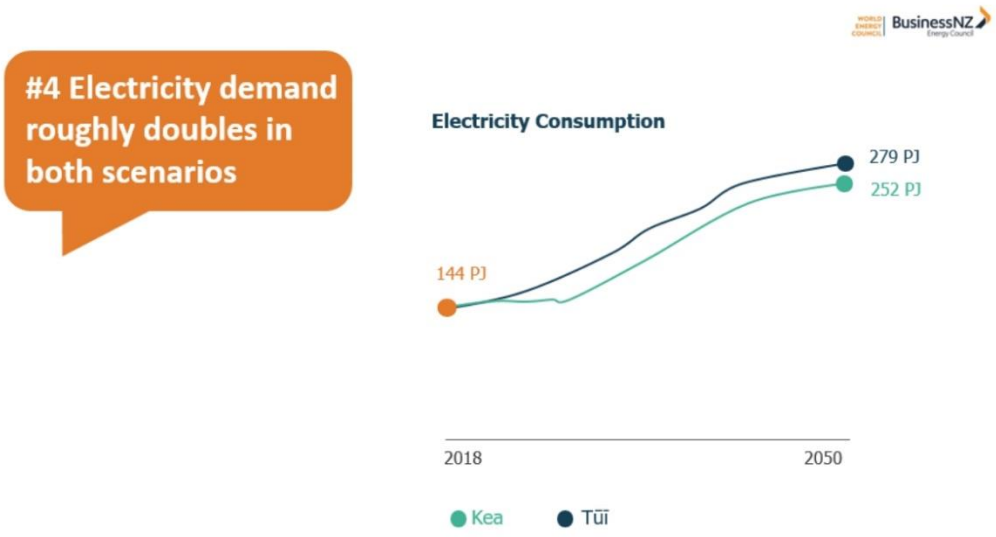
18. Option 3) is BEC's preferred option as it will provide future proof for the HVDC link with the expected increases in electricity demand. The proposed increase in capacity to 1400 MW will represent a 15% increase in max flow from the south to the north. In synergy with this upgrade are upgrades to the cable termination stations, HVDC control system replacement, cable storage facilities and upgrades to the Benmore filter bank.

19. BEC acknowledges that supplementary upgrades will be necessary to reap the benefits of upgrades to the HVDC link. Increasing the capacity of the HVDC link cable to 1400 MW only helps if the rest of the North Island AC grid can absorb the extra 200 MW without stability problems. Otherwise, the true limit just moves to the next weakest link, and the country has paid for unused capacity.

20. It may be worth looking to see whether the additional investment in upgrading the max capacity of the HVDC cable link might be more beneficial if put into cheaper demand-side responses. For example, increasing generation in the North-Island to reduce the electricity imports necessary from the South Island.

21. The investment of $1.4 billion is significant, but the cost of inaction is far greater, both economically and in terms of reliability. Without upgrades the ability to balance supply and demand amongst New Zealand will be made much more difficult particularly in periods of high electricity use or generation shortfalls in either island. For consumers this would create a higher likelihood of outages and general grid instability. The HVDC link allows New Zealand to access the lowest cost electricity generation across the country. Without a reliable link, each island would be dependent on its own generation when demand is high. This would force the use of more expensive or less efficient power plants, driving up prices. The reduced ability to transfer surplus renewable electricity, especially from the South Island hydro-dams, would increase reliance on fossil fuel generation.

22. The TIMES-NZ 2.0 model[2] shows that in both its Tūi and Kea scenarios electricity demand roughly doubles by 2050 due to electrification of transport and industry. An upgraded HVDC link is essential to integrate new renewable generation, without it the grid will struggle to accommodate increased generation.



23. To ensure that investor confidence for businesses that depend on reliable electricity supply remains high upgrades are needed. Major outages or system instability caused by HVDC inefficiencies could disrupt industry, commerce, and essential services, leading to direct economic losses.

[2] More about TIMES-NZ 2.0 in appendix 2

APPENDIX ONE – BACKGROUND INFORMATION ON THE BUSINESSNZ ENERGY COUNCIL

The BusinessNZ Energy Council (BEC) is a group of leading energy-sector business, government and research organisations taking a leading role in creating a sustainable, equitable and secure energy future.

BEC is a brand of BusinessNZ and represents the World Energy Council in New Zealand. Together with its members, BEC is shaping the energy agenda for New Zealand and globally.

BusinessNZ is New Zealand's largest business advocacy body, representing:

- Regional business groups: EMA, Business Central, Canterbury Employers' Chamber of Commerce, and Business South
- Major Companies Group of New Zealand's largest businesses
- Gold Group of medium sized businesses
- Affiliated Industries Group of national industry associations
- ExportNZ representing New Zealand exporting enterprises
- ManufacturingNZ representing New Zealand manufacturing enterprises
- Sustainable Business Council of enterprises leading sustainable business practice
- BusinessNZ Energy Council of enterprises leading sustainable energy production and use
- Buy NZ Made representing producers, retailers, consumers of NZ-made goods

BusinessNZ is able to tap into the views of over 76,000 employers and businesses, ranging from the smallest to the largest and reflecting the make-up of the New Zealand economy.

In addition to advocacy and services for enterprise, BusinessNZ contributes to Government, tripartite working parties and international bodies including the International Labour Organisation (ILO), the International Organisation of Employers (IOE) and the Business and Industry Advisory Council (BIAC) to the Organisation for Economic Cooperation and Development (OECD).

APPENDIX TWO – FURTHER INFORMATION ON TIMES-NZ 2.0

BEC, in conjunction with EECA and over 60 partners from across the energy sector, including private and public sector entities, have developed TIMES-NZ to stimulate future energy system thinking. TIMES-NZ scenario modelling is to stimulate future energy thinking by providing an **integrated overview of New Zealand's energy sector,** showing where we are now and where we might be heading, including the trade-offs and opportunities for taking a pioneer or follower approach related to climate change actions.