14 June 2024

Inquiry into climate adaptation
Finance and Expenditure Select Committee Secretariat
Parliament Buildings
Wellington
Via submission portal

Tēnā koe,

Opportunity to build an ambitious and targeted climate adaptation framework

Powerco connects nearly one million Kiwis across the North Island to electricity and gas. We have an important role to play enabling Aotearoa New Zealand's efforts towards climate adaptation and strengthening the resilience of our infrastructure, while we continue to strive for energy that is affordable for our customers, delivered in an environmentally conscious way, and provides security of supply every step of the way. Further information about Powerco and our network is provided in Attachment 1.

Since our submission to the 2023 inquiry, Powerco has completed its first *Climate Adaptation & Resilience Plan* (**Plan**). The Plan is scheduled to be published on 31 July 2024[1]. Our first Climate-related disclosure report, using the Aotearoa New Zealand climate standards provided by the External Reporting Board, is also scheduled to be published by 31 July 2024. To develop our Plan, we have assessed climate risks and asset vulnerability across our networks, developed our approach to proactively identify, mitigate and adapt to climate risks, and documented our regional analysis of risks and investment priorities. While planning and resilience investment is not new, the Plan documents our approach for the first time, and this process has:

- Demonstrated the use of climate scenario analysis to test the resilience of our assets against various emission pathways[2] and associated climate risks over short (2035), medium (2050) and long term (2080) time horizons
- Identified initial outcomes of the vulnerability and priority investment in our electricity and gas networks, with updated geo-spatial hazards data
- Identified gaps where further work or information is required to better embed resilience thinking into investment decision-making
- Refreshed our decision-making approach
- Further developed our resilience strategy and priorities.

[1] Once published, our Climate Adaptation & Resilience Plan and our Climate Related Disclosure Report will be available on our website: Powerco: Home

[2] As per the International Panel on Climate Change AR5 report (Representative concentration pathways or RCP) and AR6 report (Socio-economic shared pathways or SSPs)

Our view remains consistent with our 2023 submission that as a clear national framework becomes more important, it will also become more complex, as individual organisations develop their own path to improve adaptation and resilience, as each major climate event demands a response. We encourage the Committee to progress a framework that will be ambitious but targeted in making change, while building on all the excellent work already underway.

We have noted some **key learnings during 2024 in developing and documenting our approach to adaptation and resilience**, that are directly applicable to the Inquiry:

1. **There is a balance between scenario likelihood, cost for our customers, and benefit**. For example, whether the moderate or worst-case scenarios are used for sea level rise, makes minimal difference in the area of our network impacted for the Socio-economic Shared Pathways (SSPs)[3] but using the worst-case scenario may disproportionately increase cost for customers. Our objective is to plan for appropriate scenarios but be prudent and avoid imposing unnecessary added costs. We'll need to keep reviewing our scenario analysis and mitigation response as the science and data evolves.

2. Some locations have **specific risks that will require community-led responses**. We have an opportunity for solutions developed with local knowledge, supporting standard models, and Powerco working with communities on resilience options is a key input to our future planning. Our resourcing commitment to community engagement has ramped up over time and will be a growing commitment.

3. **Improved coordination across critical infrastructure services** and providers is an important next step in developing aligned responses. We have modelled our electricity and gas networks to specifically identify assets vulnerable to inland inundation and sea level rise, however our assets do not exist in isolation. New Zealand's infrastructure is a complex web of inter-dependent services Government work on adaptation and resilience (including this Inquiry) is very focused on central government and local government infrastructure. We appreciate this may be a priority, but all elements of the web need to be part of solutions - for example, our work with Lifelines regularly identifies restoration to roading, electricity and telecoms is a priority for emergency response and restoration.

4. Local government has a critical role in that coordination, and community level planning is required. But not to the exclusion of infrastructure providers. Powerco's experience working across six regions and 29 territorial local government areas, is that local planning efforts cover the full spectrum in levels of maturity and collaboration. For Powerco to implement our Plan, including our own engagement with local communities about resilience options, we need much **greater understanding of local plans and improved coordination across infrastructure providers and local government**.

5. Our Plan informs our asset strategies and associated expenditure in our electricity and gas asset management plans (AMP). Producing an AMP is a requirement under the Commerce Act, but the **rules and guidelines that direct our AMP process do not specifically address resilience requirements** (nor is this part of the Commerce Commission's objectives). A recent Commerce Commission review of resilience assessment in Electricity Distribution Business (EDB) AMPS[4] found that EDBs generally have a framework for resilience assessment (eg EEA resilience guide), some use specific standards (eg seismic strengthening), and

[3] The Socio-economic Shared Pathways (SSPs) are identified in the recent IPCC AR6 report

[4] IAEngg-NZ-EDB-2023-AMP-Review-Resilience-Assessment-Report-17-April-2024.pdf (comcom.govt.nz)

it's hard to find resilience expenditure or cost/benefit rationale to justify it in the AMPs (including because EDBs classify resilience expenditure in different ways). This makes it difficult to measure and monitor AMPs for national effort in improving resilience. We support adding to the Commerce Commission's objectives so explicit consideration of resilience is expected, and this can then flow through to the directions and decisions made by the Commission.

6. **Tools used for investment decisions need to be augmented** to enable investment in resilience to be optimised alongside traditional investment programmes while still aligning to business strategic objectives. These tools are not specific to EDBs but are used across a range of sectors, eg the Copperleaf[5] system. We use a value framework tool to determine investment cost/benefit in our AMP as well as a suite of asset models[6] to forecast asset failure and investment. This software will need to be adapted so that it adequately reflects the value communities place on a resilient energy supply, their willingness to pay, and the community welfare value for different options (eg cascading impacts due to interdependencies with other infrastructure).

7. We have developed **deterministic response targets for various essential and critical customer groups** we consider to be high priority during a significant event. These groups include interdependent utilities, such as lifelines organisations, that rely on electricity and gas to function, as well as critical customers, such as health and welfare, community hubs, emergency services etc. The initial response targets set a baseline that will be further enhanced through ongoing community consultation. We have established our targets and customer groups based on our networks and objectives but there is no national benchmark for this.

We would also like to emphasise **key points of our 2023 submission, highlighted as priorities from recent work** on our Plan:

8. **Data availability and information sharing is patchy and inconsistent**. Where available, we are using climate data broadly aligned to our climate scenarios to forecast asset risk over short, medium and long term time horizons. We have incorporated this data into our Arc GIS system (GIS). Having this data available in the Powerco GIS gives us autonomy to analyse context relevant to our assets, such as asset condition, customer connections, proximity to rivers and vegetation, slip prone soils etc. While our current data methods have effectively assessed sea-level rise at an individual asset level (using SSPs), applying a similar strategy to extreme weather events, would provide more comprehensive analysis. Publicly available data on extreme weather risk is limited, and not often provided in spatial formats compatible with GIS. It would be beneficial to explore collaborations with climate science institutions such as NIWA to enhance future risk forecasting capabilities, and more open sharing of this information. Our GIS system contains private information and is not a shared or public platform. A way of efficiently sharing geographical data about hazards and assets should be a key consideration for a national framework. A number of existing portals or

[5] Copperleaf in an asset management optimisation system that Powerco uses for decision analytics in our electricity business. This value framework software is used internationally by a range of infrastructure providers, but is not used by all EDBs in New Zealand. We are also planning to transition our gas asset management system into this tool.

[6] Our suite of asset models is based on the UK DNO Common Network Asset Indices Methodology (CNAIM). This methodology differs from other forecasting methods in that it develops a bottom-up estimate of current and future asset health, probability of failure, and risk for each asset in the fleet. See our 2023-electricity-asset-management-plan.pdf (powerco.co.nz) Section 9.3.2.2 for further information about CNAIM.

ways of sharing data exist or are in development, which would benefit from coordination (we do not think a new portal is a priority). It is important that the Inquiry includes infrastructure providers in information sharing options to inform our adaptation decisions.

9. **Standards can assist** – we already have some standards that mitigate climate risks and we have used these to identify material climate hazards for our networks and inform improving resilience. The most efficient way to incorporate climate-related risk mitigation is in Powerco's design standards, so it is "baked in" to our asset management approach and is not a separate undertaking or consideration. While standards already exist, there is scope to improve consistency in which standards to use. For example, for a zone substation, earthquake standards are well defined nationally but flood risk design standard less so[7], with large gaps between the National Adaptation Plan and flood design standards used by individual organisations. It is important to note that you can only have a national standard if that data is available nationally (which is not the case for all flood risk data). We recommend avoiding new requirements through additional standards which may have unintended consequences of directing capital investment inefficiently or inappropriately for local conditions or assets. Individual infrastructure providers are best placed to understand their customers, their networks, and what good resilience looks like in their situation. Care will be needed that standards do not undermine this, or force investment when it's not needed or wanted by customers, or where more efficient options are available. We provided suggestions where standards could assist, while minimising compliance costs, in our 2023 submission.

10. **Customers pay for increased network resilience (costs are socialised and capped)** - Increasing resilience will have financial consequences. The default regulatory position is that customers pay for increased investment in our electricity and gas networks. This investment is socialised across customers on our network. Enhancing resilience of our assets and services is expected to be an incremental change rather than significant financial consequence. We note that investing in increased resilience has a direct value to the government in reducing event response cost, and appropriately allocating that value/cost is part of the equation. Exploring funding or cost-sharing alternatives at a national level may have merit, however principles like "beneficiary pays" may not be simple to apply in the electricity and gas networks regulatory regime. The Inquiry should also consider the fact that our expenditure is capped by the Commerce Commission, unlike some other infrastructure providers. The recently released draft decision by the Commerce Commission sets our electricity expenditure for the FY2026-2030 period (DPP4) which incorporates our spend on resilience. The draft recognises the difficulty in setting allowances just now due to current uncertainties, including developing views and policy about investment in adaptation and resilience. The high degree of uncertainty with forecasts at a category level, including a 'resilience' category, is also a reason the draft decision proposes a cap for total capex, not at a category level[8]. As noted in point 5 above, an explicit objective for the Commission around adaptation and resilience would assist.

11. **Understanding the value of resilience** to communities is important but can be difficult to measure in a way that is meaningful (or nationally consistent) for the purpose of prioritising expenditure. Consumer engagement, either by Powerco independently or in coordination with local government and other

[7] Some EDBs will use a 1:250 year flood design standards for a zone substation, and others a 1:500 year flood design

[8] Commerce Commission DPP4 draft decision, 29 May 2024, page 130 starting para B88: Default-price-quality-paths-for-electricity-distribution-businesses-from-1-April-2025-Draft-reasons-paper-29-May-2024.pdf (comcom.govt.nz)

infrastructure providers is a critical part of building this understanding. We recognise the need for a growing effort in this space.

12. **Energy options are changing**– there are a broad range of energy options in addition to traditional electricity lines services eg community hub arrangements or distributed energy resources like solar supply. Energy adaptation and community adaptation frameworks need to enable alternatives and changing technology. Demand for electricity is forecast to increase more than 70% by 2050. Our strategy includes a transition to a distribution system operator as we increasingly integrate and enable distributed energy, storage and control assets. This will enable the maximum utilisation of our network assets, non-network solutions, and resilient pathways for customers. Our capacity to move on this quickly will be dictated by regulatory allowances. Maintaining our natural gas network also has an important role to play in the energy transition, as well as exploring low and zero-carbon gas alternatives for the future.

Through developing our Plan, we have endorsed four themes in our strategic approach to climate resilience: Greening our gas network, hardening our network backbone, creating energy resilient communities, and sharing data to work interdependently. We will continue to build on our own work to ensure our planning and investment reflects not only how we will keep the energy flowing to our customers, but also new information on climate change risks; new policy, regulatory and local planning settings; and our unwavering commitment to enable Kiwis to thrive as we respond to our changing climate.

If you have any questions regarding this submission or would like to talk further on the points we have raised, please contact Irene Clarke (Irene.Clarke@powerco.co.nz). We would welcome the opportunity to meet with the Select Committee to discuss current challenges, priorities, and learnings in developing our Climate Adaptation & Resilience Plan, in targeting policy reforms to improve resilience and adaptation for communities.

Nāku noa, nā,

Emma Wilson
Head of Policy, Regulatory and Markets
POWERCO

Attachment 1 – Information about Powerco and our network

Providing an essential service

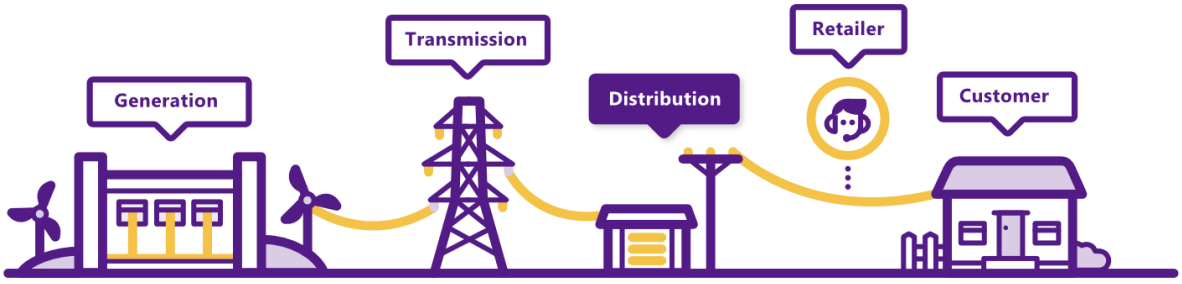
We bring electricity and gas to around 1 million kiwis across the North Island. We're one part of the energy supply chain. We own and maintain the local lines, cables and pipes that deliver energy to the people and businesses who use it. Our networks extend across the North Island, serving urban and rural homes, businesses, and major industrial and commercial sites. We are also a lifeline utility. This means that we have a duty to maintain operations 24/7, including in the case of a major event like an earthquake or a flood.

The cost of operating our business is not dependent on the amount of gas or electricity we distribute in our networks. These costs reflect the need to maintain the safe operation of the network and are mostly driven by compliance with safety regulations. This includes replacing assets when they reach their end of life. Additional costs to grow the size or the capacity of the network are often met by customers requiring the upgrade or new connection.

Under Part 4 of the Commerce Act, Powerco's revenue and expenditure are set by the Commerce Commission as part of monopoly regulation. We are also subject to significant information disclosure requirements, publicly publishing our investment plans, technical and financial performance, and prices. The regulatory regime allows us to recover the value of our asset base using a regulated cost of capital (WACC) set by the Commission, and a forecast of our expenditure. Every five years, the Commission reviews its forecasts and resets our allowable revenue. This process is designed to ensure the costs paid by customers for us to manage and operate our network is efficient given we are a monopoly and an essential service.

Our electricity customers

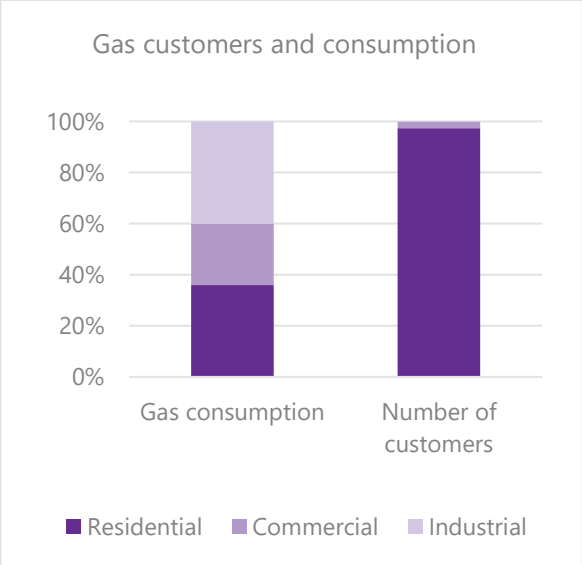
Powerco is New Zealand's largest electricity utility by the area we serve. Our electricity networks are in Western Bay of Plenty, Thames, Coromandel, Eastern and Southern Waikato, Taranaki, Whanganui, Rangitikei, Manawatu and Wairarapa. We have over 29,000 km of electricity lines and cables connecting around 357,000 homes and businesses. Our place in the electricity sector is illustrated below.



Our network contains a range of urban and rural areas, although is predominantly rural. Geographic, demographic, and load characteristics vary significantly across our supply area. Our development as a utility included several mergers and acquisitions that have led to a wide range of legacy asset types and architecture across the network.

Powerco is one of 29 electricity distribution companies. Our customers represent around 13% of electricity consumption (similar in magnitude to the Tiwai aluminium smelter) and around 14% of system demand. Powerco's network is almost three times the size of Transpower's in terms of circuit length. The peak demand on our combined networks (2023) was 974 MW, with an energy throughput of 5,225 GWh.

Our gas customers



Powerco is New Zealand's largest gas distribution utility. Our gas pipeline networks are in Taranaki, Hutt Valley, Porirua, Wellington, Horowhenua, Manawatu and Hawke's Bay. We have over 6,200 km of gas pipes connecting to around 114,000 homes and businesses. Our customers consume around 8.6 PJ of gas per year.

Our industrial customers are less than 1% of our customer base and consumer approx. 40% of gas on our network. Our residential customers are 97% of our customer base and consume approx. 35% of gas on our network. The remaining 25% of gas is consumed by our commercial customers.

Around 30% of our larger customers are in the food processing sector, around 20% in the manufacturing sector and around 10% in the healthcare sector.

Our network footprint

Our network represents 46% of the gas connections and 16% of the electricity connections in New Zealand. We operate assets within six regions and across 29 district or city council areas.