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Via email: InfrastructureResilience@dpmc.govt.nz

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Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system

Mercury would like to thank the Department of Prime Minister and Cabinet (DPMC) for the opportunity to provide feedback on the discussion document (the document) *Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system Ensuring Aotearoa New Zealand has a secure platform for a productive, sustainable, and inclusive economy*.

Mercury is a vertically integrated electricity generator and multiproduct retailer that offers electricity, gas and telecommunications services to its customers. We are New Zealand's largest electricity retailer, and we also serve 125,000 telecommunication customers and 90,000 gas customers. Mercury generates all its electricity from renewable energy sources (hydro, geothermal and wind). We also sell fixed wireless and mobile services.

Mercury broadly supports the adoption of a system wide approach for strengthening critical infrastructure resilience. We recognise the importance of broadening risk assessments to include identification of physical risk, as well as cyber security, personnel, supply chain and procurement. We agree with the four mega trends identified by the DMPC and the value of taking a whole-of-systems approach to addressing the issues presented. However, there is complexity in each component of the critical infrastructure system which need to be well considered if robust outcomes are to be achieved through an appropriate regulatory response, if needed.

There is currently a suite of existing legislation relevant to the operation of infrastructure and resilience outcomes. There is also the Emergency Management Bill being considered by the Select Committee. Clarification is needed as to how the current legislation and the Emergency Management Bill will interact with this critical infrastructure consultation outcomes. It is important critical infrastructure reform improves resilience outcomes and does not duplicate existing regulatory obligations. Other legislation includes;

- Civil Defence Emergency Management Act 2002 (CDEMA)
- The National Civil Defence and Emergency Management Plan Order 2015 (National CDEM Plan)
- The Telecommunications (Interception Capability and Security) Act 2023 ([TICSA](#))
- Dam Safety Regulation 2022

Ongoing collaboration with other Lifeline Utility Operators through forums and groups, primarily formed under the Civil Defence Management Act 2002 already exists through several mechanisms. The National Lifelines Council and National Lifelines Forum also provide an existing means of sharing information between the various Lifeline Utility sectors. Sector Coordinating Entities (SCEs (for the Electricity industry this is Transpower) provide a mechanism for coordinating across each utility sector.

Mercury is part of the Waikato Lifeline Utilities Group (WLUG) and the Bay of Plenty Lifelines Group (BoPLG), both of which bring together Lifeline Utilities for the respective Region's critical infrastructure and its vulnerability to hazards. Interdependencies between individual utilities are already explicitly considered by those groups, and information sharing is already actively encouraged between members. Electricity generation sites form a network connected by transmission and distribution. New Zealand has diversity of electricity generation types and locations which does mitigate some risk of system failure as a result of a shortage of electricity generated. Mercury strongly advocates for retaining all components of the electricity system, including




electricity generation as critical infrastructure. This outcome is not guaranteed in the proposed definition of critical infrastructure. Under the current legislation Civil Defence Emergency Management Act (CDMA) 2002 Mercury is a Lifeline Utility, as it is an entity which generates electricity for distribution. This is an example of a lack of certainty of policy outcomes, which means Mercury cannot make assumptions about the impact of this process, including enforcement and compliance effects through regulatory outcomes.

The document also discusses last resort powers for national security risks to enable Government to act in a hurry. The suggestions are a directions power and intervention powers (as per the Australian approach), with safeguards such as good faith negotiations with critical infrastructure owners or operators. We echo the NZ Telecommunications Forum (TCF) submission which outlines that that regulation already exists in the telecommunications area to address security concerns as TICSA is designed to prevent, mitigate or remove security risks from the design, build and operation of public telecommunications networks. The Director-General of the GCSB has a regulatory role for network security under Part 3 of TICSA. Again, understanding how existing regulatory approaches would be built into a whole-of-systems approach is essential.

Mercury supports an incremental approach to this consultation process and any implementation impacts are well consider after direct conversations have been had, particularly within the energy sector. Mercury has extensive expertise in the operation, maintenance and development of critical infrastructure, as do other operators in their fields of expertise. We welcome further conversations with DPMC on this workstream, and look forward to continued engagement.

If you have any queries in relation to Mercury's submission, please don't hesitate to contact me on

Yours sincerely

A handwritten signature in black ink, appearing to read 'Nick Wilson', with a horizontal line drawn through the middle of the signature.

Nick Wilson
Head of Government and Regulatory Affairs



Appendix A: Mercury comments on Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system

Section	Consultation Question	Mercury Response
Prelude: Objectives for and principles underpinning this work programme	Does more need to be done to improve the resilience of New Zealand's critical infrastructure system?	<p>Yes. Recent events from Cyclone Gabrielle represent why interdependencies are needed to be considered across infrastructure (as a system).</p> <p>Clear communication between operators of critical infrastructure is needed to mitigate risk of disruption of an outage. Mercury supports further work with government and other infrastructure providers to ensure a broad systems approach is taken to improving resilience overall. Noting, there is an existing network of lifeline utility operators who communicate and work together currently, via the National Lifelines Council, recognised Sector Coordinating Entities, and Regional Lifeline Utility Groups.</p> <p>See attached report Waikato Lifelines Infrastructure Resilience Project, v1.0 June 2022, which Waikato Lifeline Utilities Group, a collective of telecommunications, energy, transport as well as local authorities and Waikato Regional Council.</p>
Prelude: Objectives for and principles underpinning this work programme	Have you had direct experience of critical infrastructure failures, and if so, how has this affected you?	Outages have been experienced at generation plant from time to time. Risks from outages includes natural hazards (floods, earthquakes), equipment failure.
Prelude: Objectives for and principles underpinning this work programme	How would you expect a resilient critical infrastructure system to perform during adverse events?	Needs to function and perform to a designed threshold.
Prelude: Objectives for and principles underpinning this work programme	Would you be willing to pay higher prices for a more resilient and reliable critical infrastructure system?	Our main concerns are that costs will ultimately be borne by end consumers. Costs do need to be proportionate to value communities derive from the benefits from that infrastructure. New Zealand is in a critical transition period for decarbonisation as key sectors of the economy like transport and process heat shift toward renewable sources of energy. If resilience costs are funded directly through consumer pricing this runs the risk of delaying electrification and decarbonisation progress. For this reason we have welcomed recent budget focus from government to target on budget funding for resilience investment rather than via increases in consumers pricing.



Section	Consultation Question	Mercury Response
<p>Prelude: Objectives for and principles underpinning this work programme</p>	<p>The work programme's objective is to enhance the resilience of New Zealand's critical infrastructure system to all hazards and threats, with the intent of protecting New Zealand's wellbeing, and supporting sustainable and inclusive economic growth.</p> <p>Do you agree with these objectives?</p> <p>If not, what changes would you propose?</p>	<p>Yes, agree. Noting the objectives include enhancing alignment between other regulatory regimes relevant to critical infrastructure resilience, including (but not limited to) resource management, emergency management, and climate change response. Clarity is sought how other regulatory responses support critical infrastructure outcomes.</p> <p>Mercury seeks increasing transparency and engagement with government to ensure regulatory responses are appropriate for managing outcomes for the relevant critical infrastructure. For example a regulatory response for physical interdependencies relevant to electricity generation, the electricity system (including transmission and distribution, which are linear), telecommunications, or cyber, financial systems will be different.</p>
<p>Prelude: Objectives for and principles underpinning this work programme</p>	<p>Do you agreed with the proposed criteria for assessing reform options? If not, what changes you would propose?</p>	<p>We agree in concept, however there is much detail to be developed. Further work is required.</p>
<p>Section 1: Background and context</p> <p>Why a new regulatory approach may be required</p>	<p>The paper discussed four megatrends:</p> <ul style="list-style-type: none"> i) climate change, ii) a more complex geopolitical and national security environment, iii) economic fragmentation, and iv) the advent and rapid uptake of new technologies. <p>Do you think these pose significant threats to infrastructure resilience?</p>	<p>Yes, we agree with the description of the 4 megatrends that are increasing risk to infrastructure and people/personnel resilience.</p> <p>We also agree with the interdependencies between infrastructure articulated in the Discussion Document.</p>



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<p>Section 1: Background and context</p> <p>Why a new regulatory approach may be required</p>	<p>Are there additional megatrends that are also important that we haven't mentioned?</p> <p>If so, please provide details.</p>	<p>The electrification of New Zealand's economy places more importance on the role of renewable electricity in the overall energy mix. The government has set ambitious targets by 2035 50% of our energy supply is renewable up from 28% today - most of that will be from renewable electricity. The electricity system overall needs to ensure supply can meet demand as well as is resilient to risks.</p> <p>Energy use will change as a technology evolves, which also needs to be considered.</p> <p>Diversification of energy supply is supported to build resilience.</p>
<p>Section 1: Background and context</p> <p>Why a new regulatory approach may be required</p>	<p>Do you think we have described the financial implications of enhancing resilience accurately? If not, what have we missed?</p>	<p>No, it is not clear how regulatory performance requirements will obligate minimum standards to be met, nor the timeframes or cost implications. For example, retrofitting the existing critical infrastructure such as hydro dams with civil mitigations that allow for the safe passage of water will cost significant amounts of money.</p> <p>There is significant work being undertaken as part of Mercury's dam safety program to better understand the potential effects from climate change, and adaptive response. Mercury supports the continuation of this process. Any changes to regulatory requirements need to be incremental and discussed directly with operators. Other forms of the critical infrastructure such as financial systems, cyber security may have much faster responses to regulatory requirements.</p> <p>Upgrades to generation sites are also likely to be faced with a number of environmental constraints, which may necessitate consent upgrades to allow the safe passage of water. Effects on the environment may potentially need to be compensated for, which adds cost.</p>
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Building a shared understanding of issues fundamental to system resilience</p>	<p>How important do you think it is for the resilience of New Zealand's infrastructure system to have a greater shared understanding of hazards and threats?</p>	<p>Understanding anticipated hazards and threats is fundamental to ensuring critical infrastructure is resilient to outages and cascade failures resulting from critical dependencies.</p> <p>Relevant to hydroelectricity, it is anticipated the effects from climate change will result in more frequent and larger high flow events (floods). Further analysis of hydraulic modelling/data is needed to understand reliability on passage of flood systems and high flow management planning to mitigate such events. Potential remedies could require significant upgrades to existing dam structures, which are subject to dam safety and environmental regulation.</p>



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<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Building a shared understanding of issues fundamental to system resilience</p>	<p>2: If you are a critical infrastructure owner or operator, what additional information do you think would best support you to improve your resilience?</p>	<p>Focusing on hydro operations, which we are experiencing greater volatility in climatic events and trends which means historical data sets become less relevant to establish risk levels moving forward. An example is the Waikato Hydro System received more rain fall in 2023 than any other year on hydrological record. Currently we are investigating the effects from climate change and working toward safe solutions as part of Mercury dam safety program.</p> <p>More climate related research at a catchment would be of benefit. Central government could assist with this work stream.</p>
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Building a shared understanding of issues fundamental to system resilience</p>	<p>2: What do you think the government should do to enable greater information sharing with and between critical infrastructure owners and operators?</p>	<p>From a system approach, establish, maintain, and develop a risk management program to identify and mitigate 'material risks' that have a substantial impact on the availability, reliability, and integrity of critical infrastructure in New Zealand. These outcomes can be communicated and need to flesh out critical dependencies in the critical infrastructure system.</p> <p>Currently it isn't mandatory to participate in Lifeline Groups, which could be mandated.</p>
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Setting proportionate resilience requirements</p>	<p>2: Would you support the government being able to set, and enforce, minimum resilience standards across the entire infrastructure system?</p> <p>If so:</p> <ul style="list-style-type: none"> – what type of standard would you support (e.g. requirement to adhere to a specific process or satisfy a set of principles)? – do you have a view on how potential minimum resilience standards could best complement existing approaches to risk management? 	<p>No. More information is needed and communication with existing lifeline utility operators and existing groups, so the wheel is not recreated. For example Mercury is a member of the Waikato Lifelines Utilities Group (WLUG) and the Bay of Plenty Lifelines Group (BoPLG), which both include energy sector, roads, telecommunications, liquid fuels 3 waters, and support from local and regional government.</p> <p>Generally, we prefer a non-regulated approach, but should regulation be required then minimum standards provide and appropriate regulatory response to managing risks to critical infrastructure. If minimum resilience standards are to be set and enforced, these need to be clearly tied back to the actual risk they are addressing, and the required methodology for applying them needs to be very clear.</p>



Section	Consultation Question	Mercury Response
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Setting proportionate resilience requirements</p>	<p>Would you support the government investing in a model to assess the significance of a critical infrastructure asset is, and using that as the basis for imposing more stringent resilience requirements?</p> <p>If so:</p> <p>– what options would you like the government to consider for delivering on this objective? –</p>	<p>More information is needed to clarify what is included as critical infrastructure by definition. Mercury seeks explicitly clarity that electricity generation is included.</p> <p>There is potential merit in a centralised methodology to standardise assessment of significance of critical infrastructure, as well as identification of risks, which is relevant to both critical infrastructure and communities safety and well-being.</p> <p>Currently the Lifeline Groups use a 3-level hierarchy for grading asset criticality: "Nationally Significant", "Regionally Significant" and "Locally Significant" In some applications Regional significance is split up into two categories based on customer numbers affected. As an electricity generator this is difficult to apply directly due to the transmission system minimising the local impacts of local or regional generation outages.</p> <p>Utilisation of existing land use mechanisms, spatial planning tools to drive decision making to ensure the efficient and safe provision of infrastructure is essential and would support this outcome and need to be empowered to support the efficient provision of infrastructure, which is at heart of the issue in New Zealand.</p> <p>Managing significant risks from natural hazards under the RMA which has not eventuated, which is evident as development has progressed through consent processes agnostic to risks from the natural hazards, or mitigated identified risks. Mercury's experience is councils have not developed and implemented adequate tools for development to adequately assess risk. There are significant resourcing and cost barriers. This places burden of future risk and cost onto communities and infrastructure providers whom must service development. Poor land use decision making from lack of information relating to risks will cost more in the longer term and represent in the form of managed retreat.</p> <p>Mercury would support standards around minimum, requirements for assessment risks to communities. Under the current RMA, or regulatory reform it is not clear how societal risk or a risk-based approach to development is managed. A macro-approach to an issue such as flood modelling is supported, where local outcomes have been politically influenced. Public processes that ignore intolerable risk in decision making need central intervention to ensure communities are aware of risk. Land use and consenting also play a role in the supply of information for critical infrastructure operators. For example, earthworks within a functional flood plain erodes storage and results in cumulative impacts downstream and need to be managed.</p>



Section	Consultation Question	Mercury Response
<p>Potential barriers to infrastructure resilience</p> <p>Setting proportionate resilience requirements</p>	<p>2: What criteria would you use to determine a critical infrastructure asset's importance?</p> <p>investing in a model to assess a critical infrastructure asset's criticality, and using that as the basis for imposing resilience requirements that are more stringent on particularly sensitive assets?</p> <p>If so:</p> <ul style="list-style-type: none"> – what options would you like the government to consider for delivering on this objective? – what features do you think provide the best proxies for criticality in the New Zealand context? 	<p>Currently the Lifeline Utility groups and National Lifelines Council use a very coarse three-level ranking of criticality, which is too coarse for some purposes. Even the four-level version of this is still only expressed in terms of end-use customers affected, so is difficult to apply to the electricity generation sector.</p> <p>We would suggest that it would be more useful and faster to apply if the existing Regional Lifeline Group and National Lifelines Council criticality models be used as a basis for any new criticality assessment framework.</p> <p>Currently this is only expressed in terms of numbers of customers affected, but should also be extended to consider duration of effects.</p> <p>Considerations might include:</p> <ul style="list-style-type: none"> • Number of customers, and their level of vulnerability (e.g. remote communities might be small in numbers, but disproportionately affected due to their distance from alternative resources). • For non-customer-facing utilities such as electricity generation, define an equivalent scale that reflects the potential for inability of Transpower to supply all customers without imposing load reductions.. • Duration is an important consideration.
<p>Potential barriers to infrastructure resilience</p> <p>Managing significant national security risks to the critical infrastructure system</p>	<p>2: Do you think there is a need for the government to have greater powers to provide direction or intervene in the management of significant national security threats against a critical infrastructure?</p> <p>If so:</p> <ul style="list-style-type: none"> – what type of powers should the government consider? – what protections would you like to see around the use of such powers to ensure that they were only used as a last resort, where necessary? 	<p>Mercury does not have a firm view on this.</p> <p>The CDEM Act already gives significant powers to the National, Regional and Local CDEM Controllers and that these provisions should not be unnecessarily duplicated.</p>



Section	Consultation Question	Mercury Response
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Creating clear accountabilities and accountability mechanisms for critical infrastructure resilience</p>	<p>Do you think that there is a need for a government agency or agencies to have clear responsibility for the resilience of New Zealand's critical infrastructure system?</p> <p>If so:</p> <ul style="list-style-type: none"> – do you consider that new regulatory functions should be the responsibility of separate agencies, or a single agency? – do you consider that an existing entity should assume these functions or that they should be vested in a new entity? – how do you see the role of a potential system regulator relative to sectoral regulators? 	<p>This is already a clear requirement of the CDEM Act and National CDEM Plan. Any further powers should be designed in a way that avoids duplication of accountability and effort.</p> <p>However, gathering these powers under a single regulatory entity is likely to cause overlaps in control and a reduction in clarity as to who is responsible for each utility sector. Where an existing agency already has accountability, this should also be extended to include oversight of standards for resilience for each lifeline sector (e.g. electricity, gas, telecommunications, roading, etc).</p>
<p>Section 2: Potential barriers to infrastructure resilience</p> <p>Creating clear accountabilities and accountability mechanisms for critical infrastructure resilience</p>	<p>Do you think that there is a need for compliance and enforcement mechanisms (eg. mandatory reporting, penalties or offences) to ensure that critical infrastructure operators are meeting potential minimum standards?</p> <p>If so:</p> <ul style="list-style-type: none"> – do you consider that legal obligations should be applied to the entity, to the entity's directors/executive leadership, or a mix of the two? 	<p>We consider it is more appropriate to first consult each lifeline sector and define the minimum standards in partnership with the National Lifelines Council and Regional Lifeline Utility Groups.</p> <p>Mandatory reporting or penalties should be a last resort in the event that a Lifeline Utility (critical infrastructure organisation) is having a significant adverse effect on the resilience of nationally significant infrastructure.</p>

