He Pou a Rangi
Climate Change Commission

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Dr Alan Bollard
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New Zealand Infrastructure Commission
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Dear Dr Bollard

Submission on He Tūāpapa ki te Ora – Infrastructure for a Better Future

He Pou a Rangi Climate Change Commission welcomes the opportunity to submit on the proposed direction for the 30-year Infrastructure Strategy for Aotearoa.

We are pleased to see that reducing emissions and adapting to the impacts of climate change are a prominent part of the proposed direction. It will be important that the Infrastructure Strategy requires consideration of both the impacts infrastructure has on greenhouse gas emissions that contribute to climate change, and the impacts climate change will have on infrastructure and the land-uses it supports, where they are located in high risk areas.

An appropriate decision-making framework to support sound investments now is urgently needed in order to avoid maladaptive outcomes. Infrastructure can play an important role in enabling and supporting the transition to a thriving, low emissions, and climate resilient Aotearoa.

Infrastructure affects how people live, work and travel, and the choices they can make. Well-planned infrastructure investments can also unlock the deep emission reductions that Aotearoa needs to make in the longer term to meet climate change targets. For example, designing compact communities with infrastructure that enables easy access to rapid/ frequent transit, and supports walking and cycling, can lead to significant emissions reductions over time by reducing reliance on private vehicles.

Smart infrastructure investment decisions can also create jobs, enhance access to basic services, education and work, and ensure people are better off over the long term.

Poorly planned infrastructure or short-sighted investment can stall progress, lock Aotearoa into high-emitting activities, or create stranded assets and make some people more vulnerable. It can equally lock-in a long-term legacy of inflexible decisions that make adaptation to the impacts of climate change difficult and expensive to address in the future.

Building infrastructure requires lengthy lead-times, and infrastructure assets have long lifetimes. The planning and development of infrastructure therefore needs to take a long-term view of at least 100 years. This will make the transition to low emissions easier, avoid stranded assets, increase resilience and limit future exposure to the impacts of climate change.

Infrastructure being planned and built now needs to be compatible with achieving net-zero long-lived greenhouse gas emissions by 2050 and maintaining that over time. Infrastructure also needs to be resilient to the impacts of climate change that will happen over its lifetime.

This is not just about the resilience of the infrastructure itself, but also of the activities and land-uses it supports. Infrastructure has a big impact on the extent of exposure to climate risks like increased heavy rainfall, sea-level rise and associated rising groundwater, and increased temperatures.

Joining up the three key areas of action

Central government, local government, private entities and Māori collectives all plan and invest in infrastructure. To make sure infrastructure is fit-for-purpose and can adapt to the future, it is important to think about how each of these actors make their planning and investment decisions, and make sure they have the right information, tools, decision and assessment processes, and incentives.

The discussion document identifies three key areas for action for the infrastructure strategy – building a better future, enabling competitive cities and regions, and creating a better system.

We agree that these are important areas of focus. However, it is important to ensure that these areas are not thought about and acted upon in isolation. There are important interactions between these areas that need to be considered, and links that must be made as policy and approaches are developed.

Examples that illustrate the importance of these linkages include:

- Action to address immediate pressures, such as to address water and housing infrastructure needs (C1.3, C2.1) must properly integrate climate change over the lifetime of the infrastructure. Without this, risk will be transferred to future generations and the transition to carbon zero and adaptation will be inequitable and more costly than it otherwise could be.
- A planning system that is more enabling for infrastructure (Action S7.3) must consider and account for future pressures (F Actions) – including climate change. This is important to ensure that infrastructure is resilient, adaptable and that it does not increase exposure to climate risk.

- Lead infrastructure policy (Actions C4.1, C4.2 and C4.3) must also account for climate impacts, and avoid supporting development that increases exposure to climate risk – for example on land that is vulnerable to coastal inundation, storm surge and river flooding and drought.
- Water infrastructure (Actions C2.1 and C2.3) should be adaptable so that it can handle heavier rainfall that is occurring from a changing climate. This includes considering urban design that can absorb or store more water to attenuate the impacts of sea level rise on the largely gravity-based water infrastructure we have in Aotearoa.
- Business case guidelines to ensure full consideration of mitigation and adaptation (Action F1.1) are important, and they must also inform the development of cost-benefit analysis for infrastructure investments that have long lifetimes (Actions S4.2, S4.3 and S4.4).

Factor climate change into business case guidelines and cost-benefit analyses for infrastructure projects

The discussion document identifies areas where key action is needed to improve the way infrastructure is planned, developed and delivered in Aotearoa. It emphasises the need to deliver infrastructure that is resilient to future change – including climate change. We support the focus on this as a key priority, but stress that resilience alone will not be a robust strategy going forward.

Much of the country's infrastructure is already at risk from climate change impacts. We need new thinking about appropriate adaptation strategies. There is adequate information for decisions about the location of new developments, and the infrastructure that supports them, across Aotearoa to avoid adding to the legacy of at-risk infrastructure.

Options for action put forward include 'Adapt business case guidelines to ensure full consideration of mitigation and adaptation' (Action F1.1), and 'Recognise climate uncertainty in decision making processes' (Action F1.2). The Climate Change Commission supports these proposed options. It is important that policy decisions and investments made now do not lock Aotearoa into a high emissions development path or increase exposure to the impacts of climate change.

In our recent advice to the Government, we recommended the Government start factoring target-consistent shadow emissions prices into policy and investment analysis immediately and encourage and facilitate local government and private sector to do the same.

Incorporating long-term abatement cost values consistent with climate change goals into cost-benefit analysis (Action S4.2) and business case guidelines (Action F1.1) would help to make sure investment decisions are net-zero compatible. This is common practice internationally.

Work has progressed on developing an approach to incorporating shadow emissions prices into government decision making, but it is not yet consistently applied. The use of shadow emissions prices by local government and the private sector would also help to make sure other infrastructure and investments are robust across different plausible future scenarios.

Infrastructure planning and investment, and businesses cases and cost-benefit analyses for infrastructure projects, also need to factor in local climate impacts and risks. This should include consideration of not just modelling, but both quantitative and qualitative analysis. Using the best available information for this analysis is critical but uncertainty and imperfect information must not delay important infrastructure decisions.

Use of available dynamic decision frameworks for making and prioritising infrastructure decisions in a way that appropriately factors in climate risks will be critical going forward.

Need for accessible and up to date information, guidance and tools for decision making

Recognising climate and impact uncertainty and requiring all infrastructure projects to consider mitigation and adaptation, are important. But to do this well, entities planning and investing in infrastructure need access to consistent and reliable data, information and guidance, and to use the available decision-making tools where certainty cannot be attained through information. This is important to inform robust business planning, cost-benefit analyses and policy and investment decisions, whatever the climate change outcomes.

To ensure infrastructure investments are compatible with a low emissions future:

- Infrastructure providers need guidance for how to incorporate shadow pricing into investment decisions, and what the shadow price should be.
- Our analysis suggests that carbon costs of around $140 per tonne of CO2-e abated in 2030, and $250 in 2050 in real prices, are likely to be needed to reduce emissions associated with energy use. This information should inform the values used for policy and investment appraisal in Aotearoa, but it is incomplete because it primarily relates to the energy and transport sectors. These cost estimates are likely to be conservative.

To ensure infrastructure investments are resilient to the impacts of climate change:

- Entities planning and investing in infrastructure need access to robust, consistent science and data. Access to assessment tools that are robust across changing risk profiles during the lifetime of the investment is also needed. This will be important for avoiding ad-hoc decisions, creating risky investments or stranded assets, or making people more vulnerable.

Risk-based land-use planning relies on access to the best available information, which currently is uncoordinated. This acts as a barrier and creates costs. Information from insurance markets alone (Action F1.6) will be insufficient, as insurance markets provide weak signals principally at an individual level. A focus on provision of accessible, consistent, robust information on regional and local impacts across the whole country is key.

Robust and consistent information will not just be important for the development of new infrastructure, but also for decisions about where to protect, accommodate or re-locate existing infrastructure. Access to high-quality guidance for adaptive approaches to infrastructure planning will therefore also be important, particularly for local government.

Going forward

Thank you for the opportunity to comment on your discussion document. We welcome ongoing dialogue with you on these important topics. In particular, we offer our assistance in working with you to ensure that infrastructure decisions are made and prioritised in a way that appropriately factors in climate risks and responds to them with the urgency that is required.

Ngā mihi

Dr Rod Carr
Chairperson of the Climate Change Commission
And on behalf of the Climate Change Commission