TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

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Dear Geoff

Re: Feedback on He Tūāpapa ki te Ora / Infrastructure for a Better Future

On behalf of the Energy Efficiency and Conservation Authority (EECA), I would like to thank you for the opportunity to share our views on the draft Infrastructure Strategy for Aotearoa New Zealand.

EECA's purpose and statutory functions interact with energy infrastructure and the construction of infrastructure more broadly

EECA's purpose and statutory functions mean we have an important role as an authority, regulator, and delivery agency for many of the government's climate change and energy policies. Our current work programme involves investments in transport, electricity, health, and education infrastructure. We work closely with a range of private and public organisations to deliver these projects and reduce demand on existing infrastructure.

We look forward to working with you on identifying new, fit-for-future solutions to support the Government's ambitious emission reduction and electrification targets. We have outlined several issues below that could be relevant in the finalisation of the strategy.

A long-term infrastructure strategy presents a valuable opportunity to promote energy efficiency, energy conservation, and switching to renewable fuel sources

EECA supports the proposed vision that infrastructure lays the foundation for the people, places, and businesses of Aotearoa New Zealand to thrive for generations.

The Commission has proactively identified the areas where change is needed to meet the infrastructure challenges outlined in the draft Strategy. While transitioning energy infrastructure and preparing infrastructure for the effects of climate change is necessary and important, this action area could be expanded to address the embodied carbon and operational carbon footprint of all infrastructure and to promote the benefits of improving energy efficiency and conservation, and switching to renewable fuel sources.

Demand management tools can provide benefits for infrastructure networks and users

We strongly support the proposal to make better use of existing infrastructure and the recommendation to actively manage demand is particularly relevant to EECA. Demand management was a major theme in a recent letter EECA sent to the Commerce Commission to share our views on the emerging issues for electricity and gas networks as they relate to the Commerce Commission's responsibilities under Part 4 of the Commerce Act 1986. In the electricity sector, behind-the-meter solutions are important resources to help generators avoid switching on carbon-intensive generation and network operators investing in costly network upgrades. New Zealand has utilised a variety of demand response mechanisms in the past, such as ripple control, spot pricing, curtailable load strategies and instantaneous reserves.

Today, developments in communication and information technology have the potential to advance simple demand response programmes to an autonomous demand flexibility market that provides benefits for supply-side entities and consumers. It is a concept that is already being embraced by early adopting consumers and will only increase as electric vehicles, solar panels, home batteries and smart appliances become the norm and 'payment for demand' becomes commonplace.

As devices become more interactive with surrounding market elements, there will be a greater need for coordinated regulatory frameworks that facilitate a systems approach to energy regulation. We welcome further discussion with the Commission on the regulatory challenges from an infrastructure perspective. The Council of Energy Regulators (of which EECA is a member) has expressed interest in meeting with the Commission to discuss these issues.

Integrated policy and planning should be based on robust data

EECA endorses the Commission's view that integrating and coordinating infrastructure planning has potential to create benefits for New Zealand. While EECA is agnostic on whether institutional changes are required, EECA is supportive in-principle of any initiative that makes it easier and more efficient to coordinate integrated infrastructure planning across sectors and supply-chains.

It will also be critical to ensure policymakers and infrastructure planners have access to robust data about current and likely future sources and locations of energy demand.

EECA has two main publicly available energy information tools, both of which can support the Infrastructure Commission's work. The first is the recently updated TIMES-NZ model, which was launched in May with the BusinessNZ Energy Council (BEC). TIMES-NZ allows policymakers to model bespoke energy and emissions scenarios (out to 2060) based on input assumptions such as carbon prices, GDP and population growth, technology, and fuel costs and availability. The TIMES-NZ model can be found on EECA's website here: New Zealand Energy Scenarios TIMES-NZ 2.0 | EECA.

The second is EECA's Energy End Use Database, which estimates national energy consumption broken down by fuel type, sector, end use and technology. It can be found on EECA's website at the following link: Energy end use database - EECA tools.

EECA is also working to map heat plant assets in New Zealand to improve our understanding of fossil fuel usage for process heat and the likely future demand for renewable energy. We will make this information publicly available.

We would welcome the opportunity to discuss further how EECA's energy information and data tools could support the Infrastructure Commission's Strategy.

Renewable energy zones are worth investigating

Decarbonisation on the scale needed to achieve the legislated net-zero carbon emissions target will require significant investment across the complete renewable energy supply-chain. To enable electrification, investment will be needed in new renewable electricity generation, transmission, and distribution infrastructure, as well as investment to develop New Zealand's bioenergy supply (ideally as part of a broader 'bio-economy' maximising value from our bio-resources).

Renewable energy zones, and the associated proposals to reduce barriers to upgrading transmission and distribution infrastructure, have the potential to help match energy demand with supply on a geographical basis, and should be explored further.

While offshore wind is not a priority, it is prudent to remove regulatory barriers

While EECA does not see offshore wind as a near-term priority, we believe there is merit in the Commission's suggestion to investigate a regulatory framework for offshore wind.

New Zealand's onshore wind resource is abundant and remains relatively under-developed. With continued improvements to energy efficiency, New Zealand has sufficient onshore resource to meet the near-term requirements for an expansion in renewable generation. The two 2060 energy scenarios developed initially by EECA and BEC using the TIMES-NZ model show low-carbon, highly renewable energy scenarios without offshore wind. The near-term priority should be ensuring the optimal regulatory environment to encourage efficient consenting and construction of new onshore wind (as well as other utility-scale renewable energy generation including solar).

Additionally, EECA's Energy Efficiency First report shows how nationwide uptake of energy efficient technology – the 'first fuel' – could lower the system cost of decarbonisation, thereby preserving and unlocking investment options in the future.

However, there are sound reasons to start investigating a regulatory framework for offshore wind. Globally, the costs and deployment times for offshore wind are decreasing rapidly and, given much of the world's remaining economic wind resource is situated offshore, this trend can be expected to continue. It is feasible to envisage a future in which it becomes economic to deploy offshore wind in New Zealand. New Zealand has a potentially abundant offshore wind resource that, deployed at scale, could enhance our energy security, or provide investment opportunities for the utilisation of this resource. Offshore wind also has advantages over onshore wind, such as its ability to be deployed closer to demand centres.

Transport offers one of the biggest infrastructure challenges for New Zealand in the near term

The expected significant increase in EV uptake will require further investment in electricity generation capacity and an expansion of the electricity and public EV charging networks. EECA is in the process of developing a public electric vehicle (EV) charging infrastructure roadmap that includes forward-looking guidance on infrastructure investment, locations, types of chargers and standards of charging required over the next five years. The roadmap intends to address the most immediate needs to support light EV uptake by New Zealand road users and aligns with a wider, longer-term strategy being developed by the Ministry of Transport, Waka Kotahi, MBIE and EECA. As detailed earlier in this submission, EECA is also working alongside other energy regulators to identify and address barriers to demand-side flexibility and management to lower the infrastructure costs of this transition.

We support action to increase the use of low emission transport modes, such as walking, cycling and public and shared transport, as well as optimising or reducing travel but these investments need to be kept in perspective of their carbon reduction benefits. While this will require investing in infrastructure that supports these transport modes, EECA research shows that only 4 in 10 New Zealanders understand that transport is their single largest contributor to carbon emissions. Public education will be a key enabler to help people to choose low emission transport modes.

Thank you again for the opportunity to provide input at this early stage. EECA looks forward to building a strong relationship with the Commission and welcomes the opportunity to work together on these issues as the energy sector plays an increasingly critical role in delivering a low-carbon economy.

Yours sincerely,

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Chief Executive