01 November 2023

Energy Resources Markets Branch
Ministry of Business, Innovation and Employment
15 Stout Street
PO Box 1473, Wellington 6140
Consultation: Advancing New Zealand's energy transition

Dear Justine Cannon

Thank you for the opportunity to submit our feedback on the Advancing New Zealand's Energy Transition Discussion Document.

NIWA is the lead Crown Research Institute (CRI) in oceans, aquatic resources and environments, and marine fisheries. Our Statement of Core Purpose states that we will grow renewable energy production. NIWA is also the lead CRI for climate and atmosphere and plays a key role in climate change adaptation and mitigation. The resources for renewable energy (especially solar, wind and ocean dynamics) are at the core of our business, as is the potential environmental effects of new infrastructure, what the best renewable energy mix is, the implications of energy development for multiple outcomes (e.g., water security), and the context of how this will contribute to net zero carbon goals.

With 750 staff working on and supporting climate, freshwater and ocean science NIWA is in an unrivalled position to understand the challenges and issues involved in making Aotearoa New Zealand's energy transition a reality.

Te Kūwaha (NIWA's National Centre for Māori Environmental Research) is the only dedicated Māori research centre of all CRIs, and allows us to work closely and effectively with iwi and hapu across Aotearoa, including supporting energy resilience goals and helping the transition to low carbon systems.

NIWA provides key services to the energy sector supporting the necessary expansion of renewable energy sources in an environmentally sustainable way, with built in resilience to the changing climate. This includes the provision of renewable energy resources data and the assessment of environmental impacts. We provide both short and long term quantification of risk through climate modelling and weather related hazards to infrastructure, as well as resource potential and security.

NIWA is pleased to see this discussion document on developing an Energy Strategy for New Zealand, which is an important part of the transition to net-zero emissions by 2050. All of the elements included here, the Gas Transition Plan, the transition to an expanded and highly renewable electricity system, the Interim Hydrogen Roadmap, and the Regulatory Framework for Offshore Renewable Energy, are essential to the move to a low emissions economy and society.

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We note that a sustainable energy system requires that it is resilient in the face of climate change and short-term variability, for example increasing frequency and severity of extreme weather events. New electricity generation, network, market and renewable fuel sources must have built-in resilience to future climate scenarios. **We believe that downscaled IPCC climate projection scenarios and predictions of associated extreme events provide the needed framework for ensuring system resilience to climate change and so should be explicitly part of the policy framework to inform implementation. The requirement for climate resilience should be given a much higher profile in all documents relating to New Zealand's Energy Strategy.**

As a CRI, our purpose is to deliver the science New Zealand needs and we are often involved in policy development as technical experts or otherwise. We can help with the refinement of the different elements of the energy transition programme and are available for further discussion regarding any of our recommendations and comments.

We hope our suggestion is useful and we look forward to engaging further in the process.

Yours sincerely