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Attn: Submissions analysis team
Climate Change Commission
By email: hello@climatecommission.govt.nz

Re: Genesis Energy submission – Climate Change Commission 2021 Draft Advice for Consultation

Genesis Energy (**Genesis**) is committed to 'empowering New Zealand's sustainable future'. We share the ambitions of the Climate Change Commission (the **Commission**) and commend the work undertaken to date.

As New Zealand's most diverse energy business, with commercial interests from end to end along the supply chain from gas production through to retailing electricity, Genesis has a unique perspective to offer on the challenges ahead. The key principles that form the basis of our response are:

1. **Develop a low-carbon energy pathway**: A 30-year low-carbon energy strategy for New Zealand built on cross-sector 'systems' thinking, rather than single issue 'siloed' thinking will be key to a successful transition. The transition must be focused on outcomes and the plan must have regard to the interplay of factors within, and inter-connectedness between, the various sectors in our economy.

2. **Maximise New Zealand's competitive advantage – renewable electricity**: New Zealand's highly renewable electricity system is an important competitive advantage and must be central to the low-carbon energy pathway. We have a unique opportunity to leverage our highly renewable electricity sector to incentivise decarbonising transport and industry. Balancing the energy trilemma (affordability and access, energy security and environmental sustainability) is crucial to seizing this opportunity. Get it wrong and our advantage will turn into a disadvantage.

3. **The emissions trading scheme (ETS) is working, so far**: The ETS price signal has been working and will continue to, if allowed to. We support the ETS as the principal lever for the lowest cost transition. But we also recognise that there exist some imperfections with how the ETS interfaces with markets and that not all sectors of the economy are included. Any additional policy interventions must be considered carefully in terms of their consequences and should be limited to ensuring a fair and just transition for all New Zealanders and correct for market imperfections so that the transition doesn't stall.

4. **Incentivise rather than ban… more carrot less stick**: New Zealanders must be engaged in a constructive, positive and empowering journey. Where interventions are justified they should focus on incentives that encourage change rather than bans that force outcomes. Known barriers such as first mover disadvantages around transmission costs and restrictive planning rules, must be lowered or removed. Outcomes should be the primary focus of policy, with markets left to work unhindered until flaws emerge that need addressing.

Develop a low-carbon energy pathway

Genesis strongly supports the development of a 30-year cross-sector national energy strategy which drives lower carbon outcomes with due regard for the views of both industry and consumers. The key questions we believe need to be addressed are:

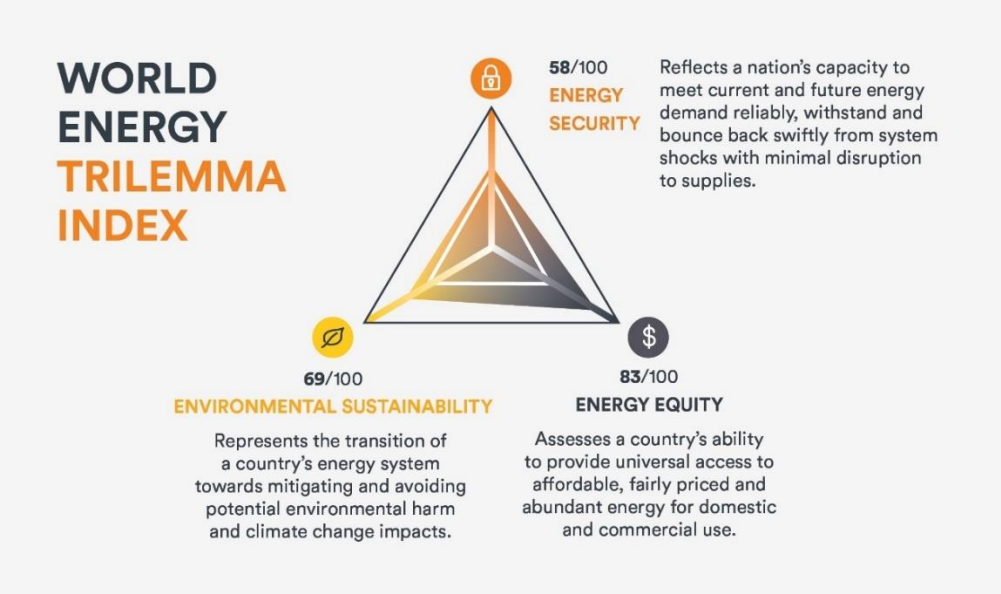
What is the lowest cost and most productive pathway to a low-carbon energy future? Consideration should be given to the sequencing of the transition, interdependencies and timeframes, with key staged outcomes highlighted.

How can the interplay between different parts of the energy system be balanced to ensure New Zealand's biggest advantage – renewable electricity – supports decarbonisation of transport and industrial heat?

Where today's technology cannot enable economic electrification, what alternative fuels (e.g. bio fuels, hydrogen) might need to play a role?

How can we balance the energy trilemma – ensuring a secure and affordable supply of energy while meeting the country's sustainability objectives?

How should New Zealand maximise its renewable electricity advantage to create new long-term competitive advantages, with the R&D settings to enable future sectors to emerge?



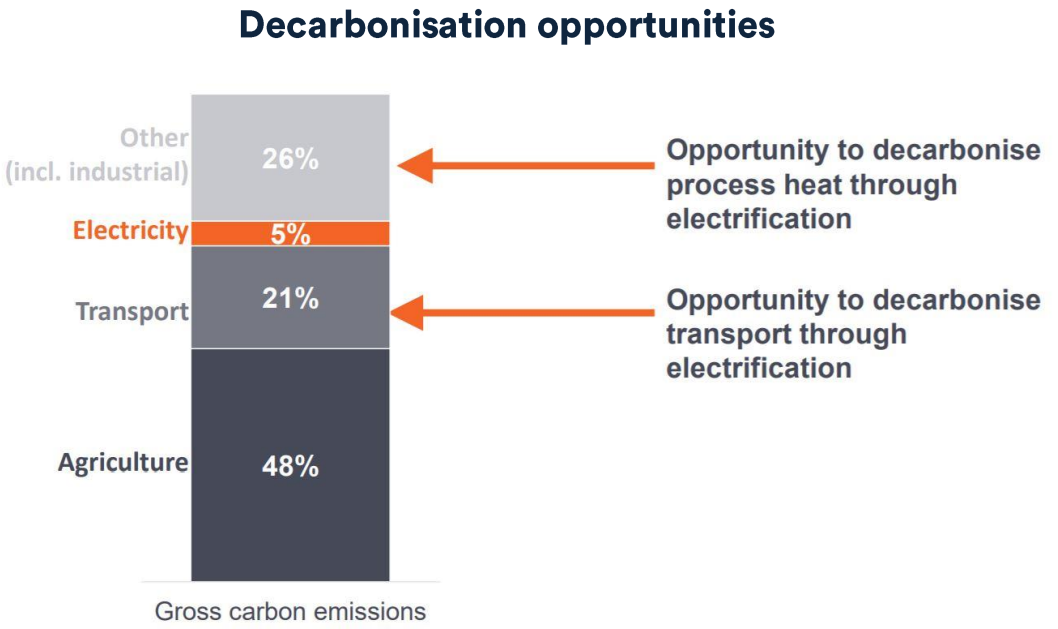
[1]

Genesis agrees with the Commission (and the former Interim Climate Change Committee) that the current "*100% renewable electricity target should be treated as aspirational and*

[1] World Energy Council 2020.

considered in the broader context of the energy system that includes electricity, process and building heat and transport"[2].

New Zealand's highly renewable electricity system is the key to unlocking a low-carbon energy sector and economy. Of the currently available economically viable technologies, electricity presents the greatest opportunity to displace fossil fuel use in transport and industrial heat applications.



[3]

A multi-decade approach, addressing the challenges in the right order, has the best chance of achieving a just and timely transition to decarbonisation. Locking in bad decisions now will imperil that transition.

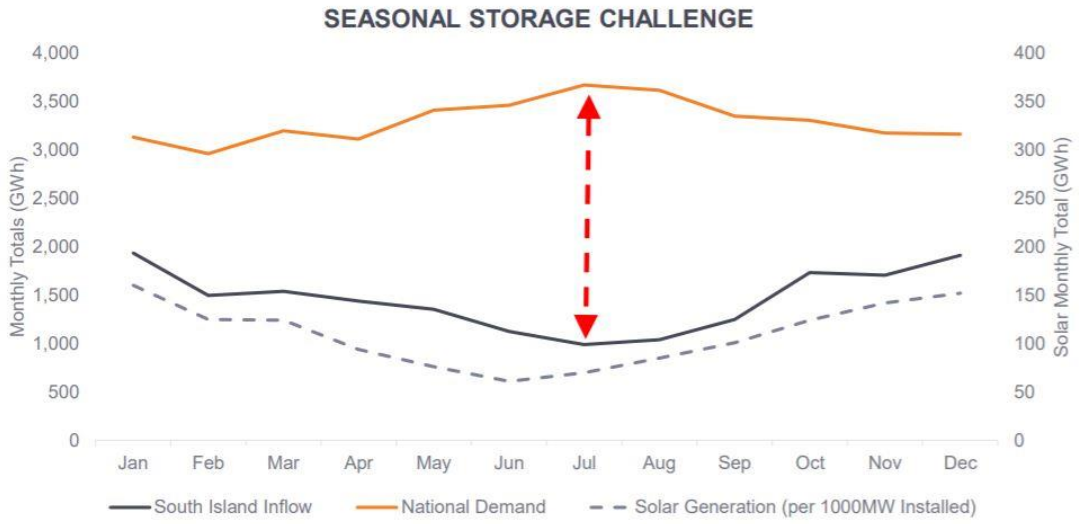
For our part, Genesis has set itself ambitious targets for reducing our contribution to national emissions. In December 2020 we committed to the most aggressive emissions reduction targets by any New Zealand energy company. We have committed to remove at least 1.2 million tonnes of annual carbon emissions from our activities over the next five years, assessed against the Science Based Targets Initiative benchmark of limiting global warming to below 1.5°C by 2025. Our key lever for achieving this target is economically displacing baseload thermal generation from our portfolio with renewables and transitioning to greater reliance on lower carbon fuels.

The Commission recommends a national energy strategy set a date by which coal electricity generation assets must be retired[4] and progresses solutions to the 'dry year problem'[5]. This, in our view, is an overly simplified recommendation.

New Zealand currently requires about 7,000 GWh of deep energy storage to manage the seasonal shift in demand between summer and winter, and to cover dry years. In winter, New Zealand typically needs 2,000 GWh more stored energy than our hydro lakes can provide. In

[2] Climate Change Commission, 2021 Draft Advice for Consultation. Time-critical necessary action 3.
[3] New Zealand's emissions 2018, Ministry for the Environment data.
[4] Climate Change Commission, 2021 Draft Advice for Consultation, Necessary action 5a.
[5] Climate Change Commission, 2021 Draft Advice for Consultation, Necessary action 5b.

dry years an additional 5,000 GWh or more can be needed. Thermal plant at Huntly Power Station fills most of that storage gap today, and we expect it will meet the entire gap within the next few years.



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In the absence of a clear and credible replacement technology, we do not believe it is in New Zealand's best interest from an energy security perspective to set a termination date for back-up generation assets. The Government's NZ Battery Project[7] may find an appropriate solution to the country's storage requirements – but it may not. Taking a systems view, the focus should be on overall energy sector decarbonisation outcomes rather than electricity sector decarbonisation outcomes with the sector already at circa 85% renewable. For the next decade, it is difficult to see how some back-up thermal will not be required.

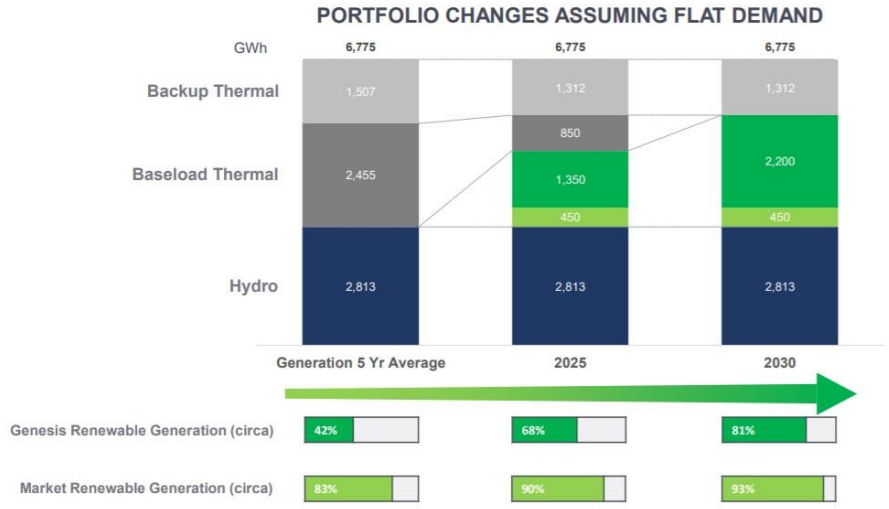
Maximise New Zealand's competitive advantage – renewable electricity

The New Zealand electricity sector is in an enviable position internationally, with its high and growing proportion of renewables, as the sector continues to reduce its carbon impact. These assets will enable decarbonisation of other parts of the energy mix at costs lower to those that can be achieved overseas, while creating opportunities to capture export value in increasingly sustainability conscious markets.

The proportion of renewable electricity in the system is growing without intervention beyond the ETS. The recently-commissioned Waipipi Wind Farm, constructed with the support of a 20-year offtake contract with Genesis, provides about 455 GWh of zero carbon electricity per annum. Genesis has committed to developing 2,650 GWh of new renewable generation, with Waipipi being the first project through the pipeline.

[6] Genesis analysis.
[7] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/low-emissions-economy/nz-battery/

Cheaper renewable electricity will actively displace baseload thermal



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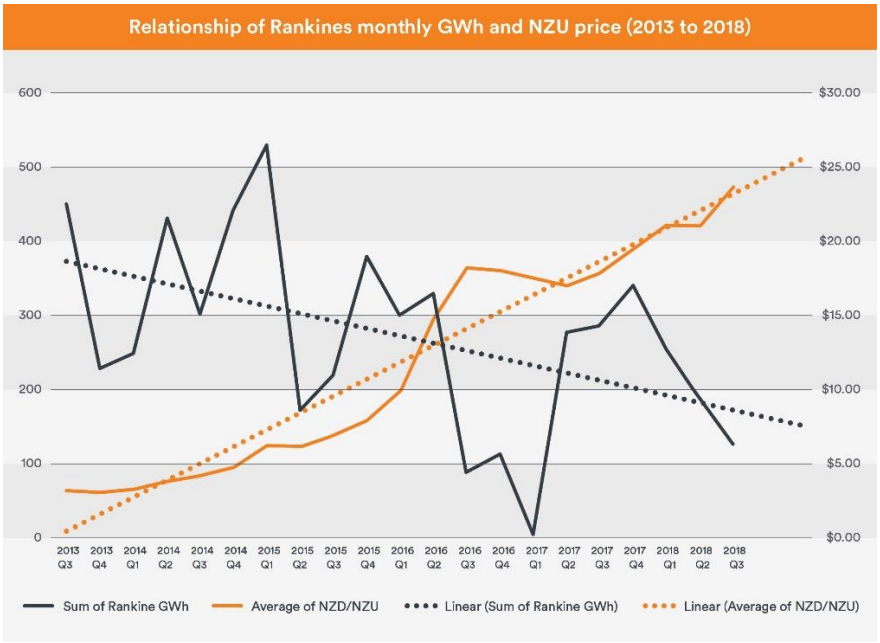
New Zealand's electricity market has emphatically delivered on its objectives to date. Security of supply has been maintained in even the most trying conditions, and New Zealanders enjoy some of the lowest per-unit prices in the OECD[9] (after inflation, residential electricity prices are at their lowest since 2012). The market has incentivised efficient entry and exit on the generation and retail sides of the market.

The emissions trading scheme (ETS) is working, so far

While not the only driver, escalating carbon prices have influenced a material reduction in the operation of our Rankine units at Huntly. This can be expected to continue.



[8] Genesis analysis.
[9] International Energy Agency, OECD Energy Prices Data Q4 2020

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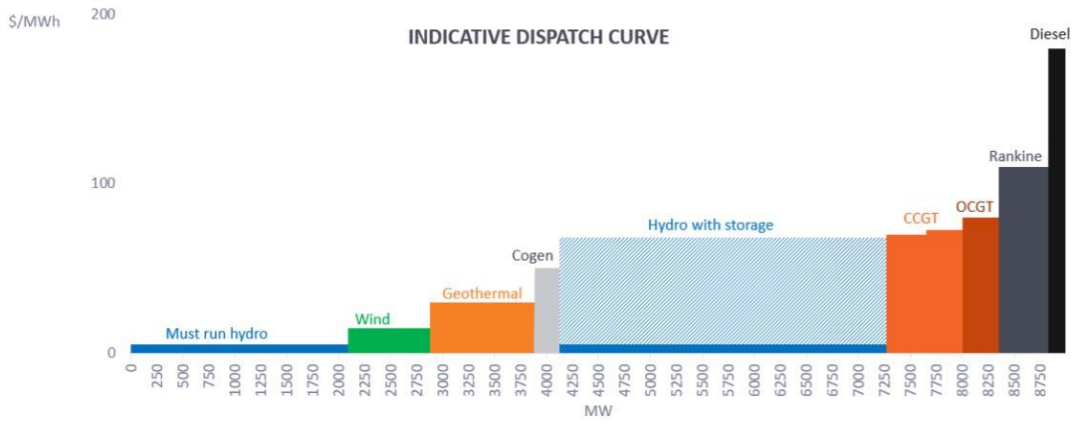
While the wholesale electricity market has delivered to date, it was not designed to deliver a just transition to New Zealand's sustainable future, nor was it designed with an escalating carbon price in mind. Genesis' experience shows us that pricing carbon introduces imperfections to the wholesale electricity market that will become more problematic as carbon prices increase. It is important to understand how the current 'energy only' wholesale electricity market intersects with the ETS.

When running, thermal generation usually sets the wholesale electricity price as it is the most expensive form of generation. Rising input costs flow through to all wholesale market purchasers (and ultimately consumers). However, when thermal plant is not running, renewable generators often 'price up' their generation offers to marginally below the operating cost of thermal plant, knowing they can keep the thermal plant out of the market up to that point. We have seen this phenomenon reflected in wholesale prices over the past two years, in particular, when infrastructure and/or fuel outages combined with low hydrology have led to increased security of supply risks.

Hydro led by thermal prices

— Carbon prices flow through to electricity costs



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This ultimately increases the cost of electricity to all users – consumers and businesses alike. The interplay between the wholesale electricity market and the ETS has the potential to create unintended consequences for the energy transition. Consideration should be given to a cross-sector impact assessment on the influence of the ETS on electricity prices and the interplay with our 'energy only' wholesale electricity market. It would be counterproductive for increasing carbon prices to slow electrification and compromise achieving New Zealand's overall decarbonisation ambition. This is a risk we envisage under the status quo.

Imperilling the back-up generation required to balance the energy trilemma would be an unintended consequence of allowing an unconstrained ETS to drive behavioural change within the current wholesale market structure. This is particularly true in an environment where an increasing proportion of renewable generation increases the electricity system's exposure to the vagaries of the weather.

[10] Genesis analysis.
[11] Genesis analysis.

Consideration should be given to whether the current wholesale market design is appropriate to ensure a just transition and that the full benefit New Zealand's renewable electricity advantage is realised. Genesis does not consider root and branch reform is likely to be necessary. However, electricity market settings should be a consideration in the development of a low-carbon energy pathway.

We also urge caution in relying too heavily on current contract terms in formulating expectations regarding future wholesale prices. Particularly where the consequences of being wrong are so high for consumers. We do not share the Commission's confidence that the Tiwai Point Aluminium Smelter, New Zealand's largest single-point electricity consumer, will cease operations at the conclusion of its current contract. Accordingly, we do not base our expectations of future wholesale prices on a system with an additional 5,500 GWh of cheap power available from 2024.

Even if the smelter were to depart when its contract ends, Genesis does not believe it is safe to assume with confidence that the electricity the smelter currently consumes would not be quickly, even immediately, subsumed by other users (such as South Island industrial process heat, hydrogen production, or otherwise). Indeed, the smelter's main electricity supplier considers that the plant will not continue beyond its current contract period unless generators are "hopelessly unsuccessful in selling that renewable generation to other new and greener technologies"[12].

Factoring in a scenario in which the smelter remains, or its demand is soaked up by other users, we expect wholesale prices to be materially higher than the Commission forecasts over the next decade before falling with the commissioning of low-cost renewables. This gap in expectations is particularly wide in the event of dry years.

Similarly, Genesis is not confident that Methanex will exit the New Zealand market in 2029 at the conclusion of its current contracts as the Commission assumes. Methanex has historically been successful in negotiating new, long term gas contracts. Whether it can do so post-2029 is uncertain, but important to consider given the potential impact on the overall energy mix.

Incentivise rather than ban… more carrot less stick

Genesis considers that the ETS will be the main driver towards decarbonisation of the economy. An ETS of appropriate scope and with meaningful price signals should efficiently drive low carbon choices. However, some interventions will be necessary to correct imperfections in various markets.

Where this is the case, Genesis considers that policy choices should focus on incentives for achieving desirable outcomes, and enabling decarbonisation. Banning specific activities or fuels risks stymying markets, and reduces options.

For example, taking a system wide view of the energy sector, Genesis is not convinced that banning internal combustion engines, thermal electricity generation or new natural gas connections from 2025 or sooner[13] is along the fastest route to reducing emissions. Each action is more likely to create positive consumer sentiment and outcomes if the focus is on incentivising renewable electricity, electric vehicles and bio-fuels. Banning natural gas connections, for example, risks stranding natural gas infrastructure that could be used for the

[12] Neal Barclay, 2019/20 Annual Review of Meridian Energy Ltd, Transport and Infrastructure Committee, https://www.parliament.nz/resource/en-NZ/53SCTI_EVI_105708_TI500/537b81dca5189520d6a468a509e705e92f1f4d0e
[13] Climate Change Commission, 2021 Draft Advice for Consultation, Necessary action 9c.

deployment of green gases in future and which could play an important role in the overall future energy mix.

We understand that the capability to certify and track green gases through the system exists today and businesses in New Zealand and abroad are developing green gas technology at pace. In that context, we believe it makes sense to maintain the availability of the transmission and distribution infrastructure that could unlock significant value from this technology (and other low carbon alternatives).

Genesis accepts that the risk of consumers locking themselves in to investments that are at risk of becoming obsolete needs to be carefully managed. We consider that this challenge is best met with information – ensuring consumers are able to make informed choices from a full suite of options.

We agree with the Commission on the need to better align policies and approaches at the local and national levels in respect of resource management and development[14]. The Government's commitment to replacing the current planning framework is welcome[15].

The inconsistent interpretation of the Resource Management Act and the lack of coherent national direction and plans under the Act have resulted in lengthy and uncertain consenting processes for renewable electricity generation projects and transmission infrastructure. If the sector is to deliver the significant increase in new renewable electricity generation required to electrify the economy, and retain our existing base of renewables, then the reform must produce enabling national direction and a simplified consenting pathway that is efficient and effective.

This applies equally to existing and new renewable projects. If reconsenting processes hinder the operation, output or capacity of existing renewable assets then the nation will need to work harder just to stand still, making achieving New Zealand's sustainable future that much more challenging.

New Zealand needs an environmental statutory framework that provides clear, firm and coherent national direction. The proposed Natural and Built Environments Act[16] must resolve the inevitably competing national directions so that we can tackle the climate change challenge via the energy system and electrification.

Transmission new connection costs also have a major role to play in either encouraging or discouraging electrification. The cost of connecting load is often too high for electrification to be economic for many large energy users. These costs fall disproportionately on the first consumer to need this infrastructure, creating a first-mover disadvantage.

This applies to the connection of new renewable generation also. The cost of transmission presents as a key barrier to development of new renewables. Mechanisms to socialise the cost of connecting new renewable sources of electricity and new demand sources could remove one of the biggest barriers, beyond the cost of electricity, to decarbonising New Zealand over the next few decades. Experience in Texas' ERCOT electricity market have demonstrated the outcomes that can be created when first mover disadvantages are removed.

[14] Climate Change Commission, 2021 Draft Advice for Consultation, Enabling recommendation 4.
[15] https://www.beehive.govt.nz/release/rma-be-repealed-and-replaced
[16] https://www.mfe.govt.nz/sites/default/files/media/RMA/cabinet-paper-reforming-the-resource-management-system_1.pdf

This needs to be solved quickly so New Zealand can capitalise on its renewable advantage. While the solutions are complex and ultimately the costs need to be met, we believe there is a strong case for the costs to be spread across the system, given the benefit of renewable development ultimately accrues to the whole economy and the environment.

Whatever the solution, ensuring transmission investment occurs in a fashion and order that is enabling for new renewable development should be explicitly addressed as part of a low-carbon energy pathway.

Conclusion

Genesis shares New Zealand's ambition for a low carbon future and believes the relevant targets are achievable within the desired time frames. The Commission's draft advice has provided an excellent basis for advancing the conversation on achieving New Zealand's sustainable future.

Ensuring markets (for carbon and electricity) are efficient and effective, preserving optionality, and creating an environment that facilitates the change necessary will give New Zealand the best chance of achieving a just transition.

Designing a coherent multi-decade low-carbon energy pathway to ensure New Zealand follows the right trajectory and correctly sequences priorities is a pressing requirement. Genesis looks forward to providing our insights on a plan, alongside our peers and customers.

We remain available to assist the Commission in preparing its final advice in whatever way is most helpful.

Yours faithfully

Marc England

Chief Executive Officer