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Chair of the Environment Select Committee
Parliament Buildings
Wellington

23 June 2022

Tēnā koe Ms. Sage,

1. This letter, plus attachments, forms the joint submission of the Sustainable Business Council and Climate Leaders Coalition (CLC) to the Environment Committee Komiti Taiao's call for public submissions on Aotearoa New Zealand's first emissions budgets and Aotearoa New Zealand's First Emissions Reduction Plan *Te Hau mārohi ki anamata Towards a productive, sustainable and inclusive economy* (May 2022). More information about SBC and CLC is contained in *Appendix 1* to this letter.

Comment on the Emissions Reduction Plan (ERP)

2. SBC and CLC recognise New Zealand's first Emissions Reduction Plan (ERP) as a significant milestone in our country's transition to a zero-carbon future. Our members recognise that business as usual is no longer an option and are already taking bold and urgent action to reduce their emissions. They are ready to work alongside Government to ensure an equitable and enduring transition for all of New Zealand.

3. SBC and CLC submitted a detailed response to the ERP discussion document in November 2021. That is attached to this letter as *Appendix 2* for the Committee's reference. That document contained 14 key recommendations and 86 detailed recommendations for the Government to include in the final ERP.

4. We focussed our recommendations on concrete proposals that will enable meaningful emissions reductions and an inclusive, orderly and enduring transition, and which could be readily translated into policy. The three key sector actions contained in our submission were as follows:

   - Given the role of transport in New Zealand's emissions profile, we recommended adoption of clear and specific targets and timeframes to decarbonise the light fleet and heavy freight.
   - We highlighted the role of the energy sector, where on $/tCO2e basis, the most cost effective and time efficient change that we can make is in accelerating process heat conversions.
   - We advocated for a transformative scale-up in public and private investment in research and development in agriculture will unlock solutions to New Zealand's largest emissions challenge – biogenic methane.

5. We also made recommendations that will enable the transition:

   - We recommended that research and development into measures to reduce emissions and facilitate the transition be substantially increased and funded through ETS proceeds.
   - To support the transition those policies will bring about, we recommended a meaningful collaboration between business and government, including a Climate Advisory Group to advise the Climate Change Response Ministers Group.
   - To achieve an effective government response, we recommended the establishment of a unit within the Department of Prime Minister and Cabinet to oversee the interdepartmental climate change effort.
   - We asked that the Equitable Transitions Strategy be delivered by December 2023 in partnership with business and other stakeholders.

6. SBC and CLC were pleased to see many of their recommendations reflected in the plan. Our analysis shows that 12 of our 14 key recommendations were reflected in the final ERP. For example, our recommendations on tackling agricultural emissions, accelerating process heat conversions, and decarbonising the freight sector, were picked up in the final ERP. Of the 86 detailed recommendations, 59 were adopted fully or in part. Many of them, however, had decisions deferred to more detailed policy processes.

7. Whilst it is understandable that the ERP could not contain detailed policy recommendations for decarbonisation of every sector in the economy, the task is urgent. It will require business and government working at unprecedented scale and pace to meet the challenge ahead. We therefore urge government to treat implementation of the ERP with equal if not greater urgency than its development.

Comment on the emissions budgets

8. The Committee has asked as part of this consultation whether the first and second emissions budgets are achievable, and if not what additional actions in the ERP would make them more achievable. It is difficult to meaningfully comment on this, as the 35-page technical annex released with the ERP provides limited information on the modelling or underlying assumptions used to develop the policies. We also have not seen from the Government a detailed analysis of the costs and benefits of the actions in the ERP.

9. Given the urgency of the task ahead, and as the first ERP and emissions budgets has been finalised, we instead focus our efforts on effective implementation of this ERP. We encourage greater transparency on both modelling and cost-benefit analysis in the second and subsequent budget periods.

Implementation of the ERP

10. Given that many of the detailed policies that will determine the success of the ERP are yet to be taken, and the first budget period is already underway, effective implementation will be critical to success. Effective implementation of the ERP will require new ways of working to break down silos across government and ensure workable and enduring policy.

11. As much of the ERP will require action and investment from the private sector, it is critical that business and government work in close cooperation. We would like to see a clear role for the private sector in implementation of the ERP.

12. We are already working alongside government in increasingly collaborative ways to realise some of the objectives in the ERP. For example, the agriculture joint venture mentioned above, decarbonisation of the freight sector, electric vehicle charging infrastructure and large-scale process heat conversions are necessitating new ways of engaging between the public and private sector. Tackling this transition will require a major shift in the way the government and business interface. We encourage all government departments to consider new modes of engagement which provide opportunities for business and other non-government actors to play a more active role.

13. Finally, it will be important that there is transparent accountability for the ERP's implementation. The Climate Change Chief Executives Board should be responsible for monitoring and reporting on progress under the ERP. As noted above, we have recommended that a Climate Advisory Group comprising key private sector and other stakeholders to sit alongside the Climate Change CE's Board. We reiterate that recommendation as an important initiative to ensure success of the ERP for all New Zealanders.

14. We would welcome the chance to address the Committee in relation to this submission.

Ngā mihi

Mike Burrell
Executive Director
Sustainable Business Council

Mike Bennetts
Convenor
Climate Leaders Coalition

Appendix 1: About SBC and CLC

About Sustainable Business Council

The Sustainable Business Council (SBC) is a CEO-led membership organisation with more than 120 businesses from all sectors, ambitious for a sustainable New Zealand. Members represent more than $111 billion of collective turnover, 34 per cent of GDP, and nearly 180,000 full-time jobs. Our network gives members the ability to take large-scale collective action. SBC is part of the BusinessNZ network and is the New Zealand Global Network partner to the World Business Council for Sustainable Development. www.sbc.org.nz/about/our-members/sbc-members

About Climate Leaders Coalition

The Climate Leaders Coalition (CLC) was launched in July 2018 with 60 original signatories to promote business leadership and collective action on climate change. With now over 100 signatories, they account for almost 60 per cent of New Zealand's gross emissions, $122 billion of collective turnover, around 38% of GDP, and employ over 220,000 people. Signatory commitments include measuring and publicly reporting their greenhouse gas emissions, setting a public emissions reduction target, and working with suppliers to reduce their emissions. https://www.climateleaderscoalition.org.nz/who

Appendix 2: SBC/CLC response to Emissions Reduction Plan discussion document, November 2021

Sustainable Business Council

wbcsd Global Network Partner

CLIMATE LEADERS COALITION

ON A MISSION TO REDUCE EMISSIONS IN NEW ZEALAND

Response to Emissions Reduction Plan discussion document

Input to Te hau mārohi ki anamata | Transitioning to a low-emissions and climate-resilient future

November 2021

Contents

Foreword – Sustainable Business Council

The Sustainable Business Council (SBC) is proud to partner with the Climate Leaders Coalition (CLC) to respond to the Government's Emissions Reduction Plan discussion document.

This first Emissions Reduction Plan is our opportunity to truly put our climate ambitions into action and ensure New Zealand gets on track to be a low-emissions country by 2050.

The time is now for a bold plan that sets out that pathway, and crucially, mobilises all New Zealanders – government, business, NGOs and civil society alike – to meet the challenge of our times.

The document provides recommendations for key policies the Government should pursue in the Emissions Reduction Plan. Critically, it also identifies the need for genuine partnership between government and business if we are to bend the emissions curve in the short amount of time we have left.

We believe our recommendations provide solutions to drive down emissions in a range of areas, including transport, agriculture, and industrial process heat, through a collaborative approach between business and government.

By working in a more aligned and effective way we can be more ambitious on freight decarbonisation, create a more effective pathway for transitioning the light vehicle fleet, see a transformational shift in our approach to agricultural R&D, and eliminate fossil fuels from industrial heat processes, while ensuring we are achieving an inclusive and orderly transition with people, at its heart.

Business and government working together to shape New Zealand's Emissions Reduction Plan between now and May next year is crucial if we are to deliver ambitious actions that meet our ambitious goals.

This also requires cross-party support on the emissions budgets, just as we saw for the Zero Carbon Act. A clear and enduring pathway, agreed across parliament, will give business the certainty they need to make investment decisions that are consistent with a low-emissions future, as well as ensuring a pathway that is equitable for all New Zealanders.

We are ready to work alongside government to help develop the next iteration of the Emissions Reduction Plan. We are confident that by working together in a truly meaningful way, we can bend the emissions curve over the next decade and deliver on the legislated targets that we are all committed to.

Karen Silk
Chair
Sustainable Business Council

Mike Burrell
Executive Director
Sustainable Business Council

Foreword – Climate Leaders Coalition

Climate Leaders Coalition (CLC) companies represent over one third of New Zealand's GDP and nearly 60 percent of our gross emissions.

Our signatories recognise climate change as the defining challenge of our time. Achieving a world limited to 2°C of warming, let alone 1.5°C, is going to require a global economic transformation on an unprecedented scale. CLC is responding to climate change as the crisis that it is, and we are now asking Government to do the same.

Through CEO leadership on climate action, CLC is committed to giving confidence to stakeholders that climate change matters to business. We are demonstrating that business can and should take a leadership role and are collectively taking action to build irreversible momentum in New Zealand towards a low-emissions and climate resilient future.

The CLC was convened in 2018 and played a key role in brokering bipartisan support for the Zero Carbon Bill. This landmark piece of legislation has provided the framework for New Zealand to mount a meaningful response to the greatest challenge of our generation.

We are at a critical moment as a nation, a moment that requires decisive, urgent action, at a scale that will meet the challenging transition task ahead.

We are stepping up to play our part. CLC's recently released *Third Anniversary Snapshot* report showed that our signatories have committed to invest $9.5 billion to reduce emissions from their business operations and $750 million to develop products or services to reduce end-user emissions over the next five years.

In turn, what we need right now from the Government is clarity, confidence, and certainty on the path forward so signatories can continue to make investment decisions that will enable our transition to a low-emissions and climate-resilient future.

Now is the time to harness our bold ambition and turn it into bold action. Now is the time to play a defining role in designing a pathway for a transition that is equitable and fair for all.

CLC is showing that business is stepping up to the plate and playing our part. We call on the Government to join us by delivering an Emissions Reduction Plan that is built on genuine, meaningful partnerships for the benefit of all of New Zealand.

Mike Bennetts
Convenor
Climate Leaders Coalition

Executive Summary

1. The recent COP26 highlighted the gap between climate ambition and action. The Emissions Reduction Plan (ERP) is New Zealand's one-in-a-generation opportunity to put the inaction of the past behind us and get serious about rapidly reducing New Zealand's extremely high per capita emissions.

2. This document represents the combined view of SBC and CLC's 150 member companies on the ERP discussion document, *Te hau mārohi ki anamata | Transitioning to a low-emissions and climate-resilient future.*

3. What is clear is that the task of transitioning to a low-emissions economy is enormous and there is a lot of work to be done. Proposals in the ERP discussion document will not achieve the Climate Change Commission's (CCC) recommended emissions budgets. Our members are ready to work alongside government to meet this challenge. They call for bold action to start now rather than waiting for the perfect plan. The ERP must reflect that urgency.

4. The task is urgent, but the response must be enduring. Emissions budgets agreed across Parliament will give business a clear signal that the future is zero carbon. The first emissions budget period is almost upon us, so we urge prioritisation of immediate action using available technologies to reduce emissions.

5. This is an all-of-government, all-of economy effort that must be resourced effectively. Just as the private sector is recalibrating itself to rise to this moment, so too we call on Government to organise and respond to climate change as the crisis it is.

6. A genuine partnership between government and business will be critical to ensuring we can bend the emissions curve in the short amount of time we have left. SBC and CLC have shown that collaboration works: our members are working together to develop and deliver solutions to drive down emissions in a range of areas, including transport, agriculture, and industrial process heat.

7. Building on that work, we have focussed this document on concrete proposals that will enable meaningful emissions reductions and an inclusive, orderly and enduring transition, and which are readily translated into policy.

8. The three key sector actions are as follows:

    - Given the role of transport in New Zealand's emissions profile, we recommend adoption of clear and specific targets and timeframes to decarbonise the light fleet and heavy freight.
    - We also highlight the role of the energy sector, where on $/tCO2e basis, the most cost effective and time efficient change that we can make is in accelerating process heat conversions.
    - We believe a transformative scale-up in public and private investment in research and development in agriculture will unlock solutions to New Zealand's largest emissions challenge – biogenic methane.

9. These efforts will all be supported through establishment of a thriving bioeconomy and circular economy that displaces fossil fuel-derived production materials and energy sources.

10. We also make recommendations that will enable this transition:

    - **Research and development** into measures to reduce emissions and facilitate the transition should be substantially increased and funded through ETS proceeds.
    - To support the transition those policies will bring about, we recommend a meaningful **collaboration between business and government**, including a Climate Advisory Group to advise the Climate Change Response Ministers Group.
    - To achieve an effective government response, we recommend the establishment of **a unit within the Department of Prime Minister and Cabinet** to oversee the interdepartmental climate change effort.
    - The **Equitable Transitions Strategy** must be delivered by December 2023 in partnership with business and other stakeholders.

11. These and our other key recommendations are set out in the table on page 7. These recommendations represent those we believe to have most potential to drive down emissions and/or to contribute to a smooth and enduring transition. We have set out the abatement potential of our key mitigation recommendations in the body of the document.

12. Our full list of recommendations can be found in the Appendix on page 56.

13. Our members are already taking bold and urgent action to ensure an equitable and enduring transition for all of New Zealand. They are ready to work in lockstep with Government to help develop the next iteration of the ERP and implement a plan that meets the Climate Change Commission's recommended emissions budgets and bends New Zealand's emissions curve.

Key recommendations

The following table sets out our key recommendations. Our **full list of recommendations** can be found in the Appendix on page 56.

Sector		Recommendation	Page[1]
TRANSPORT	1	Structure an ICE phase out taking into account the range of factors that will contribute to EV uptake (including supply, charging infrastructure, and incentives), as well as policies restricting ICE import or manufacture in New Zealand's major trading partners.	20
	2	Adopt the initiatives recommended in the SBC Low Carbon Freight Pathway to keep a 50% reduction in emissions by 2030 and net zero for the sector by 2050 within reach.	14
	3	Commission a detailed feasibility study that assesses viable pathways for a local sustainable aviation fuel (SAF) industry.	14
ENERGY – INCL. PROCESS HEAT	4	Develop a bioeconomy in New Zealand, including a roadmap for biomass supply chains and a programme to supply the North Island gas network with renewable gases.	51
	5	Develop complementary measures to the Government Investment in Decarbonising Industry (GIDI) fund that support a wider range of companies to decarbonise, including: a bespoke solution for process heat conversions amongst the largest users; a smaller fund for SME process heat users; and de-risking long-term fuel costs where appropriate.	20
	6	Prohibit the development of new fossil fuel consuming process heat plants.	20
	7	Adopt a 50 per cent by 2035 renewable energy target of 50	22
AGRICULTURE	8	Create an accelerated pathway for the development and adoption of agricultural biogenic methane reduction technologies through a step-change in public and private investment and international partnerships. Targeting a much more ambitious reduction than -24 % by 2050.	30
BUILDING AND CONSTRUCTION	9	Expand the Warmer Kiwi Homes Programme.	26
	10	Mandate NABERSNZ ratings for all office buildings, hospitals, hotels, and retail buildings by June 2023. Provide support for NABERS ratings for 500 buildings.	26
ALIGNING SYSTEMS & TOOLS	11	Establish a unit within the Department of Prime Minister and Cabinet to oversee the interdepartmental climate change response.	44
	12	Establish a business Climate Advisory Group to advise the Climate Change Response Ministers Group.	38
	13	Complete the Equitable Transitions Strategy by the end of 2023 in partnership with business and other stakeholders.	40
	14	Recycle a subset of ETS proceeds into research and innovation targeted specifically at emissions reductions and achieving an equitable transition.	48

[1] Page reference within this document for more detail on each proposal.

1. Introduction

We welcome the opportunity to comment on the Emissions Reduction Plan discussion document, *Te hau mārohi ki anamata | Transitioning to a low-emissions and climate-resilient future.* This report draws on our previous publications:

- *Briefing to Incoming Government on Climate Action Priorities* from October 2020 (2020 report, available here);
- *Submission to the Climate Change Commission on 2021 Draft Advice for Consultation* March 2021 (CCC submission, available here).

We recognise the work of consulting firms Sapere and DETA that supported the development of the 2020 report, our CCC submission, and this document. This document focuses on the consultation questions in *Te hau mārohi ki anamata* that are relevant to our members' interests as outlined in the CCC submission.

This submission follows the following structure:

- Executive summary.
- Key recommendations table, including expected emissions savings and budget ($) implications of each recommendation.
- Body text that responds to the questions asked by the discussion document. We have diverged from the structure of the discussion document to discuss transitioning key sectors first, as these areas have greatest potential to achieve additional emissions reductions. We have made clear in the headings to each section which questions in the discussion document are being addressed.
- Appendix with all recommendations in table form.

Throughout the document we have:

- Showcased member efforts to accelerate the transition to a zero-carbon future in which people and nature thrive using sidebars like the one to the right.
- Identified opportunities for business/government collaboration using boxes like the one below.

Business/government collaboration opportunity

- Interlinkages between cross-cutting and sectoral recommendations are identified using in-text shading.

CASE STUDY

Collaboration case studies between SBC/CLC members are showcased using sidebars like this.

1.2 Principles that guide our engagement

As with our CCC submission, we have formulated this input based on the overarching pursuit of a New Zealand with:

i. A society that is fair, inclusive, and diverse.

ii. An economy that is:
- open, recognising Aotearoa's role as a trading nation.
- globally connected, virtually and physically.
- supported by market regulation that is incentive focused, intervention cautious.

iii. A climate change response commensurate with the urgent and rapid action needed to keep 1.5°C within reach, comprising:
- science-based mitigation with effective measuring and reporting of emissions.
- adaptation efforts that are technology-based, risk- and future-focused.
- a just transition that is fair, equitable, and inclusive for all New Zealanders.

We have also considered the following specific principles in preparing this submission:

i. We support the domestic emissions reduction targets and purpose of the Climate Change Response Act 2002 (the Act) to contribute to the global efforts under the Paris Agreement to limit warming to 1.5 degrees above pre-industrial levels.
ii. We understand and support the focus on gross emissions reductions. We also agree that forestry offsets should not be the only mechanism relied on and that offshore mitigation should not be used to meet New Zealand's first three domestic emissions budgets other than in circumstances prescribed in the Act.
iii. We want to work in partnership with government to achieve the emissions budgets and by helping to shape and deliver the Plan.
iv. The Emissions Trading Scheme (ETS) should continue to be reformed to best fulfil its central role in pushing choices towards low-emissions alternatives. Complementary measures should be pursued alongside the ETS where there is a clear rationale for doing so, e.g. to address market distortions or failures that can make the emissions price less effective.
v. Non-price policies should focus on outcomes and promote efficiency rather than being specific regulation that disincentivises innovation.
vi. All parts of society will benefit from education and awareness raising on the imperative and the case for changing behaviours beyond ETS signals and justified non-price policies.
vii. This response is focussed on mitigation, focussing on ERP1. Adaptation, as a further pillar of our climate change response, will be the focus of future engagement including on the *National Adaptation Plan*.

In this document, we have focussed on concrete measures to help close the gap between the existing and proposed policies and actions in the discussion document and the emissions budgets proposed by the CCC, as well as enabling measures to help ensure a fair, inclusive and orderly transition.

Responses to the specific questions set out in the discussion document follows.

2. Transitioning key sectors

2.1 Transport (questions 52-57)

Headline recommendations:

- Reducing travel by light vehicles: Develop a national public transport network and articulate a clear, systems-level approach to our future mobility.
- Increasing the number of zero-emissions vehicles and a time limit on ICE vehicles: Structure an ICE phase out taking into account the range of factors that will contribute to EV uptake (including supply, charging infrastructure, and incentives), as well as policies restricting ICE import or manufacture in New Zealand's major trading partners.
- Freight transport: Adopt the initiatives recommended in the SBC Low Carbon Freight Pathway to keep a 50% reduction in emissions by 2030 and net zero for the sector by 2050 within reach.

  Abatement potential: 1,919 kT CO2e/yr by 2030 rising to 1,439 by 2035.

2.1.1 Target and actions to reduce travel by light vehicles (question 52)

The target of reducing VKT by cars and light vehicles by 20% by 2035

We agree with this target, on the assumption that it applies to the entire light-vehicle fleet, not just ICE light vehicles. We recommend Government clarify if this target is absolute or per capita.

National public transport network

We support the development of a national public transport network to reduce travel by private vehicles and to increase walking, cycling, low-emissions public and shared transport. We recommend Government articulate a clear, systems-level approach to a strategy for our future mobility.

Specifically, we recommend that the individual policies floated in the ERP discussion document be considered in a more holistic way to ensure that linkages are identified and cross-system barriers, large and small can be tackled. This is particularly important recognising that the scale of the required investment is significant and that there are long lead times for infrastructure projects.

We also recommend that the development of the network strategy be accelerated. The language in the ERP discussion document does not reflect the urgency with which this issue needs to be addressed, stating that in the focus of the first budget would be to develop "principles for planning and funding and planning" to enable the development of the network. We need to be moving quickly from principals and planning to action if we are to meet New Zealand's 2030 targets.

As part of the network strategy, we strongly recommend investigating the potential for public transport, walking and cycling in rural and provincial areas, and we would like to see more urgency placed on this action. Careful consideration is required to ensure an equitable transition and that the impacts of the transition are not unduly borne by rural communities (see also section 3.3 - equitable transitions). Thought should also be given to improving the public transport links nationally, ie, between cities. As part of this, the

right mix of design responsibility and accountablity will need to be considered as between central and local government. We recommend that central Government articulate high-level principles and design for the network, with detailed implementation and accountability to sit with local and regional councils.

We also recommend the scope of the network strategy consider:

- Adaptation requirements. Some infrastructure links might become unusable due to climate change.
- An infrastructure plan, with clear timelines over which lower-carbon and affordable transport options are introduced to enable businesses to plan for the transition, especially where delivery times are important.
- Mode-shift plans for inter-regional travel. Currently, the discussion document refers to the implementation of mode-shift plan in urban areas. We recommend that inter-regional mode-shift opportunities should also be considered in the first budget.

We support an integrated land-use, urban development and transport planning and investments to reduce transport emissions. We are encouraged to see proposals to include transport emissions impact assessments for urban development, and, through the reform of the Resource Management Act, consider integrating climate issues into how we plan for and build towns, cities and infrastructure. (See also section 4.4 – planning.)

Lastly, development of a national transport network must be informed by drivers of behavioural change, recognising that the uptake of lower-emissions modes of transport will be faced with resistance from old habits and anxiety around the use of new technologies. We are therefore encouraged to see the ERP include an action on investing for a better understanding of travel accessibility, preferences and behaviour. We strongly support this action.

Transport pricing system

We generally support improving how transport choices are priced, so that costs associated with vehicle use are internalised (e.g., congestion / parking charge) so long as this funding is then used to expand New Zealand's public transport network to provide people with low carbon transport options. By providing a more direct pricing signal of the real costs of mobility choices, such a transport pricing system would create stronger incentives to support low-carbon user choices.

Congestion charge

A well-designed congestion charge would encourage desired behaviours, fewer cars on the road, more people per car, reduce transport-related emissions and bring the cost of EVs down. It would also provide a mechanism for allowing investment into public transport infrastructure, innovation into cleaner fuels, and improvements to existing assets. This would require a dramatic increase in public transport infrastructure.

We recommend Government provide clarity around the potential impacts of a congestion charge on transport modes that do not have alternative routes, e.g. the impact of the proposed Auckland congestion charge on heavy road transport. The SBC Low Carbon Freight Group has committed to ambitious de-carbonisation targets and is already taking real action to reduce its carbon footprint. We recommend that the design of a congestion charge acknowledges the de-carbonisation effort being undertaking by NZ's heavy freight industry and consider exemptions from such charging over transport corridors for which alternative routes are not feasible.

Future-proofing road infrastructure funding

As ICE vehicles start exiting the fleet, new sources of funding for capital investments in road infrastructure will need to be secured given the current dependence on payments from fossil-fuelled vehicle use (e.g., Road User Charge (RUC), fuel excise tax). We recommend that an explicit consideration be given to how the road infrastructure funding source can be future-proofed. We recommend as few exemptions as possible for the system to operate efficiently and deliver the desired outcomes, with exploration of alternative interventions to drive uptake of low-emissions vehicles and fuels. We recommend that Government integrate this into the *Future of the Revenue System* project.

2.1.2 Target and actions to increase the number of zero-emissions vehicles (question 53)

The target of increasing zero-emissions vehicles to 30% of the light fleet by 2035

We support this target in principle as being consistent with the CCC's advice in this area. We recommend an analysis be published of how this target could impact different parts of the society, especially when interacting with other policy instruments that affect transport choices (e.g. a congestion charge). We reiterate our recommendation that the long-term focus should remain reducing the emissions footprint of the fleet through a mix of policy interventions that avoid marginalising parts of the society.

Full utilisation of Clean Car Sector Leadership Group

Low-emissions vehicles, including electric vehicles (EVs – which for simplicity we use in this submission to refer to both battery electric and hybrid vehicles), will be an important part of the broad range of solutions that will be required in decarbonising Aotearoa's transport sector. SBC has welcomed the chance to engage in the Clean Car Sector Leadership Group. We recommend the work of that Group should be accelerated and expanded to realise its full potential to develop practical solutions to overcome the key barriers to uptake of low-emissions vehicles in New Zealand. The group should focus its efforts on, and be resourced to develop, practical solutions to the timing and structure of an ICE phase out; charging infrastructure (see below); and equity – access and affordability.

If optimized and resourced to deliver practical solutions that are developed in lockstep with to the policy process, the Clean Car Sector Leadership Group could become a key model for business/government collaboration on decarbonization. Beyond that, members of the Group and their constituent companies should also be encouraged to collaborate to find solutions to other challenges, e.g. exploring options to minimise the risk of BEV supply (e.g. via bulk procurement).

Charging infrastructure

The ERP discussion document notes that EECA, MoT, MBIE and Waka Kotahi are drawing up a national infrastructure plan, aiming to serve 30 per cent of the light vehicle fleet by 2035. We support the acceleration of this work as a matter of priority:

i. The infrastructure needs to keep pace with the significant switch from ICE to EV. There is urgency to such a plan given the decisions that are already being made with respect to urban planning. We recommend that the scoping of a national EV infrastructure plan be accelerated with a view to

commencing implementation by early 2023 at the latest. We support the work being done through EECA's draft EV charging roadmap.

ii. As part of the plan, we **recommend** expanded support for co-investment for EV charging infrastructure to incentivise an accelerated rollout of infrastructure, as introduced through EECA's Low Emission Transport Fund. We particularly **support** work aimed at promoting the establishment of necessary infrastructure in rural areas.

iii. We expect smart EV charging to play a critical role in electrifying transport affordably in the future, not just for EV owners but for all users of the electricity system. We **recommend** that the ERP considers the value of smart EV charging and smart EV integration within the wider electricity system, and not restricted to heavy truck use only. We would like the ERP to explicitly reflect CCC's advice for multiple points of access and fast charging.

iv. As with the broader energy sector transition, failure to implement demand side solutions, and distributed energy resources will increase electricity prices and exacerbate inequality. Charging infrastructure must be therefore developed and rolled out with an eye to avoiding inequity. (See also section 3.3 – equitable transition.)

v. The ERP action on EV infrastructure should also consider the role and applicability of vehicle to grid technology, load management, and how this technology can be utilised in partnership with smart EV charging systems to deliver the energy and power required to charge an EV fleet across the network. This should also consider the role of residential charging to manage peak loading, given the large proportion of light EV charging that occurs at home.

There is an ongoing need for government and private sector to work closely together to ensure that charging infrastructure is developed and deployed in a way that coheres with the broader transport transition. The electricity sector (and wider energy sector) needs to be involved in designing and delivering the transport sector's transition. The Government's role should be focussed on providing certainty to the private sector and ensuring that this emerging market develops in such a way that it may eventually be self-sustaining. We see this as a key opportunity for business/government collaboration to develop a systems-level approach. This process needs to involve the transport, energy and infrastructure sectors and will require coordination at both a strategic level and at an operational level.

Role of business in accelerating fleet transformation

Corporate fleets will play a major role in the move to electrifying light vehicles. Many SBC/CLC members already have targets to transition their corporate fleets. We **recommend** that Government includes a specific action to consider the possible short-term impacts on businesses as they transform their fleet to lower-carbon assets. In addition to cooperation and information sharing between businesses on corporate fleet conversion, government has a role to play in removing current barriers (some of which are discussed below) to help smooth the pathway to electrification of corporate fleets.

The ERP discussion document recommends investigation of tax incentives. We **support** reviewing the tax system to ensure low-emissions options are not disadvantaged, however we **recommend** that this action be accelerated with clear outcomes within the first budget. Removing current barriers will help smooth the pathway to electrification of corporate fleets. That includes reducing, removing or changing the

methodology for calculating the fringe benefit tax for the corporate battery BEV fleet and employee EV charging.

There are other impacts on businesses as well. For example, current WorkSafe guidelines requiring employer owned EVs to be charged in a garage. This is a major barrier for some of our members in terms of which employees can be eligible for an EV. We recommend that this be changed or modified to make it more practical and incentivise employer EV uptake, and that this work be undertaken as a matter of urgency.

Lastly, we recommend Government consider extending the Clean Car Discount threshold to cover light commercial vans, in order to reduce the total cost of ownership of these vehicles, and thereby support BEV uptake across the commercial fleet.

Vehicle scrappage scheme

We are pleased to see the introduction of a vehicle scrappage scheme during the first carbon budget. We recognise that there are significant social issues to address in exiting older vehicles from the fleet, and that the cost of scrappage and of upgrading to a newer vehicle will be prohibitive for many low-income households. Therefore, we welcome financial support for the installation of (smart) home EV charging, and financial incentives to opt for low-emissions alternatives (e.g. bikes) instead of vehicle replacement. In addition to these, we also recommend Government consider if targeted cash incentives could be provided for scrappage, or for low-income households to trade older vehicles and purchase more fuel-efficient cars.

In addition to a scrappage scheme, we recommend that Government considers measures to reduce the amount of vehicles that may need to be scrapped, for example investigation of retrofit of ICE engines or viability of drop in synthetics and biofuels where technically and commercially viable technologies for converting engines of fossil fuel cars to EV engines and subsidise and scale them up.

Complementary measures

We recommend that Government considers complementary measures aimed at getting older vehicles off the road. This should include picking up on the work of the Battery Industry Group to explore the infrastructure required for recycling EV batteries at the end of their life within Aotearoa, with a view to a scheme being in place within the next two years.

2.1.3 Targets and actions for freight transport (questions 54-55)

The targets of reducing emissions from freight transport by 25% by 2035, and reducing emissions intensity of transport fuels by 15% by 2035

According to the discussion document, the ERP will aim to reduce emissions from freight transport by 25 percent by 2035. The SBC's Low Carbon Freight Pathway, reflected in the CCC's final advice, has shown that we can be much more ambitious, with a goal of halving emissions by 2030 and net zero for the sector by 2050. We recommend Government investigate whether a more ambitious target could be adopted by implementing the measures recommended in the SBC Low Carbon Freight Pathway as set out in this section.

The Low Carbon Freight Pathway shows a greater emissions reduction goal for freight can be set, but work needs to start now. We think leaving the actions to be developed in the second and third budget is out of pace with the urgency for de-carbonising heavy freight. The SBC Low Carbon Freight Group is already taking actions to reduce emissions. Some fuel switching options (e.g. biofuels or electrification) will require investment decisions to be made in the following years, so we urge Government to accelerate this action.

This needs to be underpinned by robust policy and action by the sector to achieve the targets. A partnership with business is essential to address the need and plans for long-term infrastructure investments to support the decarbonisation of heavy freight. Furthermore, a concerted, coordinated approach at the central government level is required rather than a piecemeal local or regional plan.

SBC and the Low Carbon Freight Group look forward to engaging on the development of the Freight and Supply Chain Strategy as a matter of priority. We note that the Low Carbon Freight Pathway modelling excludes aviation emissions, as does the modelling in the ERP discussion document Transport section. Aviation will require specific targets and pathways that reflect the dual operation of aviation carrying both people and products as well as the lack of readily available decarbonisation technologies in first two emissions budget periods.

Comments on the specific areas raised in the discussion document are set out below.

Supporting uptake of low-carbon fuels

The ERP discussion document proposes actions for de-carbonising trucks, including fuel-efficiency standards, more funding to purchase low-emissions trucks, investment in green fuel infrastructure, and green freight procurement. Although we agree with the direction set out by these actions, we recommend for a more targeted approach in identifying and removing barriers to the uptake of low-carbon fuels, not just for trucks but also for other modes of transport.

A first step would be to create the necessary settings for innovation in this space, so that the full potential of emerging technologies can be harnessed. In this respect, it will be critical for government and industry to work together to ensure that we are building skills and innovation capabilities within Aotearoa, and that the rollout of supporting infrastructure to enable innovation can continue at pace. This public-private collaboration could be shaped to follow MBIE's mission-led approach to innovation.

The SBC Heavy Freight Group describes the freight de-carbonisation pathway as made up of three horizons, with the first one being fleet optimisation and modal shift, the second – use of advanced biofuels, and the third – electrification (hydrogen or battery).[2]

Given that aviation and heavy freight are the hardest parts of the sector to abate, and biofuels and green hydrogen offer great decarbonisation potential for both but will be produced in limited volumes (particularly in the next decade), policy safeguards and incentives are required to ensure that limited resources are directed to the parts of the sector where they are most needed.

We recommend that Government:

- Invests in gathering the evidence on the expected demand for biofuels and hydrogen through to 2050 from different sectors, and on the demand for electricity required to support the domestic production of green hydrogen. As mentioned previously, the electricity sector needs to be involved in designing and following through on the transport sector's transition.
- Provides targeted support and an enabling regulatory framework to incentivise innovation and commercial production of:
    - Domestic biofuel, including sustainable aviation and shipping fuels.

[2] https://www.sbc.org.nz/media/sbc/our-word/low-carbon-freight-pathway-documents/Low-carbon-freight-pathway-report.pdf

- Green hydrogen as an alternative to decarbonise aviation and heavy transport (to complement and build on existing work done in this area, including through Ara Ake; see also discussion of the role of hydrogen in section 4.3 below).

Biofuels

We **support** the introduction of a biofuel mandate, and consideration to being given to supporting domestic production of biofuels. However, due to limited feedstock supply, we **recommend** that the mandate should be first targeted to the parts of the transport sector that are hardest to de-carbonise, i.e. heavy freight and aviation.

We also **recommend** that the domestic production of biofuels is placed within a broader bioeconomy strategy for Aotearoa. The bioeconomy and biofuels strategies must be integrated, recognising other uses of biomass feedstock in the economy, and the trade-offs amongst supply-chain investment decisions that will need to be made. The issue of biofuel supply is particularly relevant for aviation, where alternative options to decarbonise are not available (see aviation below).

As well as assessing the role of biofuels within a nationwide bioeconomy context, we **recommend** that complementary analysis also be undertaken with regards to the end-to-end supply chain of biofuels, particularly if these are domestically produced. For example, this would include analysis of opportunities and barriers upstream (e.g. biomass feedstock, hydrogen and CO2 requirements), assessment of compatibility with current liquid-fuel distribution infrastructure or new requirements, interfaces with the electricity system.

Freight and Supply Chain Strategy

SBC and CLC **support** the development of a National Freight and Supply Chain Strategy that addresses the need and plans for long-term infrastructure investments to support the decarbonisation of heavy freight. A concerted, coordinated approach at the central government level is required rather than a piecemeal local or regional plan. We see that much of the detail of freight sector decarbonisation will be contained in that Strategy. We look forward to continuing to collaborate with Government on its development and make some initial comments below.

MoT's *Hīkina* discussion document set out a number of potential emissions reduction measures that align with the Low Carbon Freight Pathway, as set out below. We **recommend** that these measures be explicitly considered in developing the Strategy.

- Optimising freight routes, logistic nodes, equipment and vehicles: the SBC Low Carbon Freight Group is already

CASE STUDY: SBC'S LOW CARBON FREIGHT PATHWAY

SBC's Freight Group has set out an ambitious but achievable 30-year pathway to progressively decarbonise New Zealand's freight system.

The Low Carbon Freight Pathway report brought together industry leaders from nine companies: Countdown, Fonterra, Lyttelton Port Company, New Zealand Post, Ports of Auckland, Swire Shipping, The Warehouse Group, MOVE Logistics (formerly TIL Logistics Group) and Toll.

This collaboration is about developing industry leadership and harnessing a collaborative approach to help the wider freight sector get to net zero using a planned and staged 30-year decarbonisation programme.

The Pathway models horizons for decarbonising freight based on **reducing** emissions by optimising the use of existing vehicles, **replacing** fossil fuels with biofuels, and ultimately **eliminating** ICE engines.

Work now continues within the group to implement business-to-business solutions on the Pathway.

planning on doing this through exploring collaborations aimed at optimising freight routes.

- Examine opportunities for the collection and better use of data to improve efficiencies in the freight system. Subject to competition law considerations, SBC Low Carbon Freight Group could play a role in the effective data gathering and use of data to improve efficiencies in the freight system. We would welcome the chance to discuss this matter further.
- Consider encouraging/supporting voluntary business collaborations to reduce emissions in logistics – the Low Carbon Freight Group is already doing this and seeking to promote more cross-industry collaboration through expanding the Pathway membership.

As well as the above, we recommend that the Strategy:

- Explores consumer behaviour that promotes modal shift, this being one of the Low Carbon Freight Group's implementation channels. We look forward to engaging on this in more detail through the Freight and Supply Chain Strategy.
- Specifically mention the roles of biodiesel, sustainable aviation fuel, green hydrogen, and BEVs in the freight sector transition. As noted above, the Low Carbon Freight Pathway showed that alternative fuels and electrification need to, and can feasibly, play a major role in freight sector decarbonisation.
- Be underpinned by evidence on the demand for mode shift to rail or coastal shipping, and the capacity available to meet that demand.
- Clearly articulate the vision on how different transport modes can integrate across different routes, identifying barriers and highlighting opportunities.

Aviation

Low-carbon fuels

Decarbonising aviation is critical to the future prosperity of primary produce exports, the tourism sector, and maintaining important social connections. Aviation plays an important role in connecting people and delivering Aotearoa's high-value and perishable export products to the world, for which alternative transport modes are not often feasible. Given the increased global focus and customer awareness of emissions embedded in products consumed, decarbonising aviation will provide broader benefits to New Zealand, its economy and its exports, noting New Zealand's reliance on air travel to connect it and its products to the world.

Overall, we support the report's recommended actions to:

i. Investigate Sustainable Aviation Fuel (SAF) feasibility. This should include a detailed feasibility study to help confirm high level production cost estimates, confirm feedstock supply, determine necessary policy and investment settings, and quantify the greater benefits to the regions of standing up a SAF industry.
   SAF is critical to aviation decarbonisation. For long haul, it is the only current option. Some of our members, including Air New Zealand and Z Energy, are committed to working with Government and others in the private sector to make SAF a reality in Aotearoa over the next few years.
ii. Support the establishment of an Aviation Decarbonisation Advisory Group. However, we recommend this group be a public-private group, like those established in the UK, US and Norway. Public-private membership would better facilitate the coordination and development of the policies and investment settings needed to support SAF, as well as other areas of aviation decarbonisation; and
iii. Consider policies and regulations for zero-emissions aircraft. This should include assessing regulatory settings related to aviation, including airports and energy systems, to ascertain whether the system is fit for purpose for the adoption of aviation decarbonisation technologies. This

assessment should be done in collaboration with the industry. We note that Air New Zealand has already signed an MoU with Airbus, under which Air NZ will investigate the impact hydrogen aircraft may have on its network, operations and infrastructure.

Current technological challenges should not stop us from planning and working towards a future with electric, hybrid and/or hydrogen fuel cell powered short haul aviation in the coming decades. New Zealand has a unique opportunity to be a world leader in the development and adoption of zero emissions aircraft, given the country's commitment to renewable energy which can be used to generate green hydrogen and our highly connected regional air network. Zero emissions aircraft will require scalable access to large volumes of green hydrogen, major changes to airport infrastructure and operations, manufacturing, supply chains, maintenance infrastructure and operations, airline capital plans and operations, and training. To realise the future economic and environmental returns of zero-emission electric aircraft, now is the time to start planning, research, and investment in partnership with the aviation sector.

As noted above, we generally **support** the introduction of a biofuels mandate applying to SAF. However, the current proposal for a biofuels mandate for Aotearoa would not facilitate SAF supply in Aotearoa. A SAF-specific mandate applying to all fuels (including fuel uplifted for use on international flights) is required. We **recommend** the SAF mandate to start at 2.5% in 2025, ratcheting to a 50% blend mandate in 2050.[3]

Any mandate must be complemented by wider policy support and investment. A mandate in isolation will provide limited support. We **recommend** investigation of a specific biofuel mandate for SAF and government support for domestic production as two of many possible policies that could be used to close the gap between SAF and fossil fuels. Other possible supporting policies referred to in the SAF roadmap[4] include feedstock prioritisation, NZ ETS exemptions, and financing support. We welcome further discussion on what the best mix of policies is for making SAF a reality in Aotearoa.

In addition to the actions proposed for the first budget, we also **recommend** the following to facilitate aviation decarbonisation:

- Identify and prepare for the infrastructure and energy requirements of zero emissions aircraft. To operate these planes in the third budget period as we plan, research and investment in this infrastructure needs to start now.
- Review the objectives of the air traffic management system to, after safety, optimise for carbon reduction.

Operational improvements

We also **recommend** exploring the scope for operational improvements at airports: developing fuel-saving flight paths (in conjunction with Airways New Zealand) and the allocation of taxiways to minimise aircraft taxi time.

CASE STUDY: DECARBONISING AIRPORT OPERATIONS

Auckland Airport and Christchurch Airport provide Ground Power Units and Pre-Conditioned Air at the gate which allows planes to connect to electricity mains when grounded rather than burn fuel in onboard generators, saving emissions. Over the course of a year, if one A320 aircraft swapped from burning jet fuel in their auxiliary power units, to instead using gate ground source power, this would save 730t CO2e and $176,000 NZD per year.

[3] See SAF Consortium 2050 Roadmap – Appendix 1 in https://p-airnz.com/cms/assets/PDFs/Airnz-sustainable-aviation-fuel-in-new-zealand-may-2021.pdf

[4] https://p-airnz.com/cms/assets/PDFs/Airnz-sustainable-aviation-fuel-in-new-zealand-may-2021.pdf

Rail and marine

We support exploring mode-shift opportunities as part of the Freight and Supply Chain Strategy, however we recommend that more analysis is undertaken to assess what a feasible path for mode shift would be over the next three carbon budgets. MoT's *Hīkina* estimated that between 15-35 per cent of the road freight task is potentially transferrable to rail and coastal shipping. The SBC Low-Carbon Freight Pathway report models 14 per cent, which is likely at the very top end of what the SBC Freight Group's report considered realistic.

Mode -shift targets must be informed by a good understanding of the capacity available on rail and coastal shipping to meet the potential demand for mode shift. This analysis is currently missing and will require an investigation of the barriers facing the shift (including service pricing and availability), and how these barriers are expected to be removed over the next 5-10 years. We recommend that the ERP includes a specific action for identifying barriers to mode-shift, which would then inform the Strategy.

We also recommend that the Strategy clearly articulates the investments required in rail and coastal shipping to deliver the desired mode-shift outcomes. This assessment of investments should link back to those announced in the *New Zealand Rail Plan* and for coastal shipping as part of the ERP, clearly identify the investment gap, and how this gap will be addressed.

We would welcome the chance to discuss the above in the context of the Freight and Supply Chain Strategy to ensure the freight pathway is feasible. Based on this analysis, we recommend that realistic mode-shift targets be considered for inclusion the ERP.

We recommend that the ERP also actions the Commission's advice to introduce a target/mandate for renewable fuels for ships with policy level guidance and recommendations to support the domestic production, distribution and supply for those alternative fuels.

Finally, we recommend closer examination of the role of shipping, including international shipping, in reducing New Zealand's transport emissions, as part of the ERP. Domestic and international shipping could be a significant source of demand for biofuels and hydrogen. Therefore, it makes sense to include these sources of potential demand be factored into New Zealand's strategies for these future fuel sources

Complementary measures

There is also an opportunity for the domestic refurbishment of high-emitting trucks. New trucks enter Aotearoa as a cab and chassis and have their freight bodies fitted locally. This has created a local expertise in truck assembly that could be used to convert diesel trucks. This would also help address low-carbon vehicle supply challenges. We are aware of the barriers to such refurbishment on a larger scale, particularly the reluctance of truck manufacturers to provide warranties, and therefore support the focus to be on newer existing diesel trucks that do not have deteriorated running gear. We recommend that the opportunity for domestic refurbishment of high-emitting trucks is explicitly considered in the ERP.

We recommend Government reviews restrictions/requirements (e.g., length restrictions) on the type of heavy vehicles that can be bought into New Zealand. These restrictions are a barrier to low-carbon heavy vehicle uptake. A change to allow longer vehicles could incentivise low-emissions heavy-freight vehicles into New Zealand faster.

2.1.4 Time limit on ICE light vehicles (question 56)

We **support** an ambitious roadmap to accelerate the transformation of the transport asset make-up. The phase out of ICE light vehicles entering, being manufactured, or assembled in New Zealand must be designed carefully to ensure it reflects the availability, affordability and safety of alternatives to ICE vehicles.

We **recommend** the policy is structured taking into account the range of factors that will contribute to EV uptake in Aotearoa (including supply, charging infrastructure, and incentives), as well as policies restricting ICE import or manufacture in New Zealand's major trading partners. The Clean Car Sector Leadership Group would be a useful forum to understand the practical and commercial reality in these areas. We point to our partner organisation, Drive Electric's, response on this issue which highlights useful analysis for the design of an ICE ban, including tying it to the pathway of the Clean Vehicle Standards, with a specific future focus on Europe.

2.2 Energy and industry (questions 58-69)

2.2.1 Process heat

Headline recommendation:

- Develop complementary measures to the Government Investment in Decarbonising Industry (GIDI) fund that support a wider range of companies to decarbonise: a bespoke solution for process heat conversions amongst the largest users and a smaller fund for SME process heat users.
- Establish a mechanism for government to underwrite long-term fuel costs to de-risk and incentivise investment in electrification.
- Prohibit the development of new fossil fuel consuming process heat plants.

Abatement potential: 3,170 kT CO2e/yr

We **support** acceleration of the energy industry switching to low-emissions fuels for process heat and the uptake of energy efficiency measures. We believe that on a $/tCO2e basis, the most cost effective and time efficient change that we can make is in process heat.

We **support** the CCC's recommendation that a high NZ ETS price signal is central to delivering this, along with policies that reduce barriers related to access to capital, behaviour change, and infrastructure access. In addition, we support the phase out of coal fuelled boilers and the development of biomass supply chains. This section is closely linked to section 4.7 – bioeconomy.

We also **recommend** that:

- investment is extended in the decarbonising industry and enhance industrial energy efficiency support.
- all new low-medium temperature coal process heat plants are prohibited.
- a program is undertaken to identify solutions to 'green' the North Island gas network.

Process heat emissions reductions can be achieved with technology available today, and at costs significantly less than today's ETS costs. This has been proven through the first two stages of the GIDI fund, where the average government investment in these projects has been less than $13/tCO2e over the 20-year lifetime of each project.

While these projects represent the 'low hanging fruit', at a current carbon price of $65/eCO2e, there are many more projects that could be implemented within a relatively short timeframe. Most successful GIDI projects have incorporated both energy efficiency as well as fuel switching – having these improvements hand-in-hand will be key to deliver the decarbonisation outcomes we need.

We support continuation of GIDI and **recommend** Government provide clarity on future rounds (for example, it is not currently clear whether there is funding after GIDI round three).

One shortcoming of GIDI is that it is focused more on mid-sized users and excludes those process heat users who are large (i.e., their conversions require upwards of $5M to support economically) or who are small, and cannot easily afford to engage experts to support the development of a project, are less able to access GIDI. We **recommend** that Government:

- directly engage with large users (e.g. top 20 in New Zealand) with a view to targeting GIDI at their transitions. The key reason for this is that the large users represent more than 40 per cent of the available capacity. Converting these users to bioenergy is not necessarily the best use of biomass fuel and will likely require a customised solution to help decarbonise. They may also make the most tangible carbon reductions across New Zealand.
- establish a second fund to assist smaller users with a less stringent criteria around engagement.

The framing of the GIDI fund is hinged largely on capital support, and while this can help many businesses across the investment hurdle, there remains concern around medium-term energy costs, and availability of fuel in a timeframe appropriate for conversion. For some businesses capital outlay is not the key barrier, but rather the uncertainty about supply and price of electricity in future prevents electrification from being an investable proposition. In these cases, government has a role to play in providing long term fuel price clarity to provide businesses with the confidence they need to decarbonise quickly. We **recommend** Government establish a mechanism to underwrite long-term fuel costs to de-risk and incentivise investment in electrification. This could be in the form of specific bridging support in the event of electricity price spikes for decarbonised businesses for a period of 10 years, to cover for periods of high energy cost and give confidence in the long-term performance of the energy market.

We have estimated the cost for these schemes by reviewing work[5] underway presently by EECA, Transpower, and many of the Electricity Distribution Boards across New Zealand.

CASE STUDY: DEVELOPING A HEAT TASKFORCE

As one of New Zealand's most promising mitigation opportunities, process heat is one of the areas many of our members are looking to tackle through collaboration.

Many of members are already changing how they power their industrial processes. DB and Sanford have moved boilers to biomass fuel as described in section 4.7 – bioeconomy. In addition, ANZCO Foods in partnership with fellow SBC and CLC member Meridian Energy has recommissioned retired electric boilers at its Canterbury site as part of an overall transition from coal to electricity will bring additional electricity usage of 14GWH and will remove 2800T of coal and 5,600MT of carbon a year at the site.

Now a group of those members are working together to scope whether business-to-business collaboration and knowledge-sharing can help them go further faster collectively.

[5] https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/Regional-Heat-Demand-Database-Overview.pdf

We **recommend** that Government prohibit the development of new fossil fuel consuming process heat plants.

Many of SBC/CLC member companies have made their own intentions clear about phasing out of coal heating systems and converting to electricity or biomass-fuelled options. There are numerous examples of plants for a range of low carbon technologies, including heat pumps, biomass boilers and electrode boiler options. And the economics of converting are being improved significantly as the ETS increases the local cost of carbon.

Specifically, we **recommend** that Government:

- Prohibit the installation of any new coal boilers for stationary process heating energy.
- Develop a transition plan in conjunction with government and industry to phase out the operation of all process heat fossil fuel boilers operating in New Zealand by 2050.

If all industry converts to a 100 per cent renewable alternative, this removes 6,390 kt CO2 (8 per cent of our national emissions). For this reason we think focusing on transitioning process heat to sustainable energy should be a top priority for government and business and should be actioned through an ambitious partnership.

Process heat retrofits

We have concerns around the availability of resources to undertake the level of work required to decarbonise New Zealand's industry. Meeting the CCC's 2037 recommended pathway is a substantial undertaking, given each large-scale decarbonisation project will be unique and complex across industries. Sequencing such a transition will need to take into consideration the availability of skilled experts to design and implement new systems, capacity to supply new equipment, reliability and affordability of alternative fuel options, and appropriate consenting and regulatory approvals.

We **recommend** that Government is clearer and stronger in its messaging that this is a significant area for quick, lasting, decarbonisation, and this should be a key area for current government investment.

2.3 Energy – electricity generation

Headline recommendation: Adopt a 50 per cent renewable energy consumption target by 2035.

Abatement potential: 8,742 in addition to the other initiatives in this document (based on CCC demonstration path).

We **support** a renewable energy target as recommended by the CCC and outlined in the ERP discussion document. We also **support** an aspirational target for renewable electricity and agree with the CCC's position which is that the last few percentage points are too expensive to pursue and that government and business would reduce emissions faster (and more affordably) if government prioritise other, more carbon-intensive emitters (transport, process heat), over investment in 100 per cent electricity generation. We **agree** with the CCC that the overall path to net zero carbon should deploy the least cost abatement options first.

Energy strategy

We **support** the CCC's recommendation to develop a long-term national energy strategy that provides clear objectives and a predictable pathway away from fossil fuels and towards low-emissions fuels, and the infrastructure to support delivery. We **agree** that this strategy is central to New Zealand's low carbon future. As we recommended to the CCC, we **recommend** that the framing of the strategy in the ERP provides

greater specificity about what needs to be included within the energy strategy to help government to act quickly and decisively. We recommend that a terms of reference of the strategy is developed and included in the final ERP.

The industrial sector (particularly process heat) and the transport sector (particularly aviation) will be large consumers of biomass and green hydrogen. This energy strategy is critical to ensuring the system is able to scale to the degree required to support New Zealand's transition to a low-emissions economy in transport and industry. We recommend that Government engage with future customers of large quantities of bioenergy and green hydrogen to ensure future demand scenarios are appropriate.

It is essential that the strategy outlines a process for central government to take a whole-of-system approach to energy policy, including the infrastructure requirements and especially in rural and agricultural settings. We note that the state of evolution, the possibilities, and the expectations on each of electricity, natural gas, bioenergy, hydrogen and demand-side response are different yet interrelated.

The strategy should also aim to reduce uncertainty and strike a balance which incentivises market-led innovation and achieves abatement in lower cost areas. The energy strategy should provide clarity on the role that Government intends to play in the energy sector and the targets and principles it will apply in considering any major investment in the energy sector. Government investment in the sector has the potential to chill private investments unless there is clarity early on government's intentions.

Also, account has to be taken of the compliance costs of the transformation. There has not been a great deal of reporting on and accounting for the emissions profile of commercial activities to date. It is clear that something like the proposed Energy and Emissions Reporting is needed. We recommend that clarity is provided on who 'owns' the energy strategy and the electricity-specific strategy, and by when the strategy will be drafted. We recommend that this strategy is owned by the Minister of Energy and Resources and that there is a commitment made to have this ready for public consultation in 2022

We further recommend that the following forms part of the long-term energy strategy:

i. Amendments to existing policy architecture to allow an accelerated transition, including ensuring the Commerce Commission's price pathway methodology does not hold up urgent additional investment for electrification of innovation in deployment of distributed energy resources (DER) for system management.
ii. The interplay of varying fuel types (electricity, biomass, natural gas, biogas, hydrogen) through the transition.
iii. Assessing the role of demand side management especially in electricity and incorporating the place of energy efficiency and new technology to better manage both supply-side and demand-side energy consumption. Ensure regulation is not a barrier.
iv. Clarifying the place of New Zealand's Energy Certificate System, and the effect of its carbon footprint on the wider electricity sector.
v. Investigation of whether policy measures should incentivise the uptake of renewable energy technologies in New Zealand. Accommodating a distributed generation model within the existing system could potentially, if structured correctly, support management of supply and demand, increase resilience and ease the burden on energy sector capital investment.
vi. The strategy should build on work already being done in this area, most notably The Aotearoa Circle's Energy Strategy.
vii. The strategy should be considered through an equitable transition lens, including measures to address the 'energy trilemma' of affordability, security and sustainability. We point to the Business Energy council's New Zealand Energy Scenarios – TIMES-NZ 2.0 as useful a tool to aid decision-making on future energy supply and the range of associated trade-offs.

Removing regulatory barriers

We **recommend** regulators remove any barriers to investments that would facilitate emissions reductions. Specifically in our submission to the CCC, we noted that the contestable wholesale and retail electricity markets are regulated by a market regulator (the Electricity Authority) while monopoly network businesses are regulated by an economic regulator (the Commerce Commission). We understand that emissions reduction objectives are national, economy-wide objectives as expressed in the Act, but those regulators have a role to play in the parts of the sector they regulate to support the purpose of the Act. They can reduce barriers to investment and behaviours that support emissions reductions.

We note that the Electricity Authority has included low-emissions energy as one of five sector ambitions in their statement of intent.[6] While the Authority's statutory objective, powers, and functions have remained the same since 2010, the environment in which we operate has changed. We **recommend** that the Authority follows through on this strategic intent and implement the recommendations of the Innovation and Participation Advisory Group under the Equal Access work stream.[7] That work identified options the Authority (and in some cases the Commission) could take to strengthen the equal access framework to further promote competition, reliability and efficiency in the provision of electricity and electricity related services, including network support services.

At present, the Commerce Commission's statement of intent does not mention the environment, decarbonisation, or greenhouse gas emissions at all.[8] We **recommend** the Commerce Commission actively reflect Government policy and intent on greenhouse gas emissions while upholding its statutory remit. Steps would include prioritising work and making decisions that reflect the contribution the electricity system must inevitably make to the decarbonisation agenda.

Adaptation of electricity regulation

We **recommend** that electricity regulation be adapted for a low-emissions future.

We note the heavy reliance on electrification in the proposed transition pathway and **recommend** that a broader view of the impacts of the institutional arrangements on the sector is given. More joined-up thinking to enable the sector to access different funding and investment mechanisms could help the electrification agenda. Specifically, the level of funding and the type of investments that can be made by regulated entities is heavily influenced by the regulatory regime.

We **recommend** that further clarity is provided on whether elements of all the existing institutional arrangements for energy are set up to encourage (and not impede) developments around the energy needs of zero emissions aircrafts (electric, hybrid, and hydrogen aircraft).

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[6] Electricity Authority Statement of Intent 1 July 2020 – 30 June 2024 See; https://www.ea.govt.nz/about-us/strategic-planning-and-reporting/statement-of-intent/

[7] Innovation and Participation Advisory Group Advice on creating equal access to electricity networks April 2019 See https://www.ea.govt.nz/development/advisory-technical-groups/ipag/final-advice/

[8] Commerce Commission Statement of Intent Our Approach for 2020–2024. See https://comcom.govt.nz/__data/assets/pdf_file/0014/222305/Statement-of-Intent-20202024.PDF

The role of green hydrogen

Green hydrogen can be used in industrial processes or stored for use in a peaking electricity generation plant, to support green ammonia as an input into green urea and other chemical products, to make green methane (to replace natural gas), to make green methanol to replace existing uses of methanol and make green synfuels. Most of those applications lend themselves to export. The electrolysis process that makes green hydrogen from renewable electricity can be set up on the basis that it could be interrupted in dry years so the renewable electricity is diverted back into the grid. New Zealand has a high proportion of renewable electricity generation today and scope for renewable generation far in excess of our electrification needs if our offshore potential is taken into account.

We **recommend** greater emphasis on the potential role of green hydrogen as a low-carbon fuel in the ERP, in particular incentivisation of measures to encourage research and innovation to explore green hydrogen's potential given the scope above. There is significant opportunity in this area. Advancing a bioeconomy will also present the opportunity to introduce green hydrogen across a range of end uses as a supplementary and complementary fuel source. For example, the North Island natural gas network could provide gas that is a combination of natural gas, biogas, and green hydrogen with ratios that change depending on the availability of each fuel type, and any excess could be converted into liquid fuels or electricity. (See section 4.7 – bioeconomy for a more detailed recommendation in this area.)

Green hydrogen is a key part of the technology roadmap for zero emissions aircrafts and has potential as an alternative to biomass as a complementary feedstock when creating synthetic sustainable aviation fuels ("power to liquid" fuels). In addition, the bioeconomy can decarbonise heavy vehicle fleets, including construction equipment. SBC's Low Carbon Freight Pathway, for example, showed that hydrogen is a viable fuel alternative to biofuels. Furthermore, both biofuel and hydrogen offer low emissions alternatives for both international and domestic shipping. These additional sources of demand need to be factored into policy to future proof the necessary infrastructure where green hydrogen and biofuels are used to reduce the carbon footprint across the economy. We **recommend** this potential be more fully explored.

CASE STUDY: SOUTHERN GREEN HYDROGEN

Southern Green Hydrogen is a joint project by Meridian Energy and Contact Energy, to evaluate the opportunity to produce green hydrogen in Southland, New Zealand. The plant has the potential to earn hundreds of millions in export revenue and help decarbonise economies both here and overseas, according to a recent McKinsey & Co report commissioned by Meridian and Contact. The report estimates global demand could increase more than sevenfold to 553 million tonnes by 2050. Southland has the potential to be at the forefront of this growth opportunity. There is significant interest in the project, with more than 80 international and domestic businesses registering their interest.

2.4 Building and construction (questions 70–82)

2.4.1 Built environment

Headline recommendations:

- Expand the Warmer Kiwi Homes Programme to deliver an additional 200,000 homes.
- Mandate NABERSNZ ratings for all office buildings, hospitals, hotels, and retail buildings by June 2023.

Abatement potential: 511.4 kT CO2e/yr.

The built environment contributes a significant amount of carbon emissions, however, is not attributable to its own sector. Decisions around our built environment impact all sectors in a multitude of ways – locations of development impact our transportation footprint, the efficiency of buildings impacts our heating footprint, and the choice of heating technologies impacts our electricity footprint.

We **recommend** that Government:

- Expand the Warmer Kiwi Homes programme.
- Mandate NABERSNZ Ratings for commercial buildings, including, all office buildings, hospitals, hotels, and retail buildings by June 2023.
- Create an Energy Performance Certificate (EPC) policy.

Expand the Warmer Kiwi Homes Programme

In 2009, the Government launched a "warm up NZ" scheme that provided subsidies to the retrofit of insulation and/or installing clean heating for pre-2000 houses and produced numerous cost-benefits, including energy and electricity savings, health benefits, and industry and employment impacts.[9]

The current programme is called "Warmer Kiwi Homes" and subsidises 90 per cent of the cost of ceiling and roof insulation, and also 90 per cent of the cost of an approved centralised heater. This is only available to low-income areas and community services card holders.

We **recommend** that the Warmer Kiwi Homes programme is expanded to cover an additional 200,000 homes and additional energy users (such as LED lighting). This additional coverage is aimed less at improving the quality of housing (which is a co-benefit) but instead drives towards reducing the overall energy consumption of residential homes which frees up renewable energy for use in other areas of the economy.

[9] Energy Savings - http://www.healthyhousing.org.nz/wp-content/uploads/2012/03/NZIF_Energy_report-Final.pdf
Cost Benefits - http://www.healthyhousing.org.nz/wp-content/uploads/2012/05/NZIF_CBA_report-Final-Revised-0612.pdf
Health Benefits - http://www.healthyhousing.org.nz/wp-content/uploads/2012/03/NZIF_Health_report-Final.pdf
Industry and Employment Impacts - http://www.healthyhousing.org.nz/wp-content/uploads/2012/03/NZIF_Producers_report-Final.pdf

Type	Value Capital ($)	Opex Change ($)	Carbon Change (T/yr)	Useful Life (Years)	Simple MACC
Insulation	$1,040,000,000	-	20,200	50	$1,030
LED Lighting	$10,900,000	-	9,900	10	$110
Water Heating	$2,400,000,000	-	115,600	25	$830
Heat Pumps to replace gas heaters	$1,250,000,000	-	100,000	25	$500

While, insulation does not offer large carbon reduction opportunities, its benefits come in the form of health savings. Research commissioned by EECA showed that homes that had been retrofit to a healthy standard accounted for a 43 per cent drop in hospital admissions for respiratory conditions, 23 per cent fewer days off school and 39 per cent fewer days off work. Accounting for these other benefits, this scheme has a cost to benefit ratio of 6:1, meaning for every $1 spent, $6 is gained.[10]

We also **recommend** that Government subsidises the uptake of electrical heating systems in homes through heat pump support, specifically to eliminate gas as a residential heating source. We have outlined in this document our plan for a bioeconomy, however, there will not be the same level of gas in the future bioeconomy as there is today. This gas needs to be maintained for uses where there are limited economic conversion opportunities, such as high temperature process heat or industrial process. Within the residential context there are low carbon technologies that already exist – heat pumps for hot water and heating, alongside induction cooking – that require support to remove capital cost hurdles.

Embodied emissions

We **recommend** that Government makes specific recommendations to address embodied emissions. While there is discussion around embodied emissions throughout the consultation document, no specific recommendations are made to address them.

The 2019 Thinkstep report[11], showed that even without substitution of materials (e.g. wood instead of concrete or steel) the emissions from materials currently used, can be reduced substantially (19 per cent by 2025 in buildings).

We **recommend** that embodied emissions are included in the following three areas:

- where buildings demand lower carbon concrete, steel, aluminium and aggregate, it will help change the manufacture and sourcing of products and reduce industrial heat emissions.

[11] https://www.nzgbc.org.nz/Attachment?Action=Download&Attachment_id=2453

- where companies wishing to manufacture low carbon building materials are saying that they need demand, in order to invest.
- within the Carbon Neutral Government Program for all new projects (those commencing design after January 2023).

A key aspect of the MBIE Whole of Life emissions framework is setting 'baseline' carbon caps for new developments on a m² basis. We **endorse** this method and **recommend** that this is adopted by 2024 – new buildings that are underway today will be here well beyond 2050, so we cannot wait to implement this change.

We also **recommend** that Government considers the ability to change the carbon conversation from a production perspective to a consumption one. Setting targets for embodied emissions within, as a starting point, buildings will drive differing consumption behaviours. We also **recommend** Government consider incentivising the use of local materials to reduce transport-related emissions.

Building energy performance

Building energy efficiency in buildings, particularly new builds, is an area that New Zealand needs to go further and faster on. We suggest that two separate areas are considered for new and existing builds.

Existing Buildings

We **recommend** that NABERSNZ ratings are mandated for all office buildings, hospitals, hotels, and retail buildings by June 2023.

NABERSNZ is a system for rating the energy efficiency of commercial buildings. NABERSNZ ratings allow tenants to understand the operating expenses and the carbon footprint associated with the leased building while it also puts more onus on the owner to invest into energy efficiency to attract higher-value tenants. In Australia, this rating scheme has been mandated since 2010 and has seen energy savings of around $1 billion and 7 million tons of carbon emissions saved. We also note that a recent report by Sense Partners[12] indicates that the total energy savings potential across NABERSNZ, for offices only, is at least 1180GWh.

Currently, a NABERSNZ rating is voluntary, and there has been a slow uptake for commercial buildings. In July 2020, Minister Parker announced that the Government would require NABERSNZ ratings on all new buildings for Government occupation. This is yet to be extended to existing tenanted and owned buildings.

Once established, NABERSNZ ratings are ideally self-funded as they become a necessity for building owners. In order to establish NABERSNZ ratings, we **recommend** that Government undertake analysis on the total cost of implementation, offers a $2,500 incentive on the initial assessment for the first 500 buildings to speed up the uptake of NABERSNZ ratings, and consider a joint funding approach with the private sector to support the ongoing implementation of the scheme.

Value Capital ($)	Opex Change ($)	Carbon Change (T/yr)	Useful Life (Years)	Simple MACC
$1,250,000		6,400	10	20

[12] https://www.nzgbc.org.nz/Attachment?Action=Download&Attachment_id=45058

New Buildings

We recommend that Government amends their energy efficiency for new builds target to 30 per cent more energy efficient by 2024, 60 per cent more energy efficient by 2027, and near zero energy by 2030.

We also note that decarbonising buildings could be supported by our proposed bioeconomy through adding green molecules to the existing gas network. For example, the expected carbon reduction from buildings could be achieved through a target of 20 per cent reduction of gas in 2030 supplied to this market segment as low-carbon gases. This would achieve the outcome sought by requiring appliance replacements to be electric or biomass, without stranding existing gas network assets and household plumbing systems.

We recommend that Government reflects following four initiatives in the ERP to proactively future proof new builds:

- Link the design of buildings with transport mode shift, including the expected uptake of EVS. Charging, parking, electricity fitouts should factor in the behaviour and needs of future EV owners.
- As above, buildings should be designed with future home energy management systems (HEMS) in mind. This is the idea that in future network businesses and energy retailers would be able to offer optimisation of roof top solar, batteries, remote management of appliances for either domestic economic optimisation or grid/energy support.
- Design out dependence on fossil fuel space and water heating now.
- Factor in the co-benefits of warm dry homes with mitigation into minimum building standards.

Energy efficiency first

We note that Government has indicated that industry needs to both fuel-switch and perform more efficiently. Therefore, we recommend that Government is clearer in its recommendations in this area.

The case for applying energy efficiency principles to existing and new buildings has long been understood. In the first instance, energy efficiency principles in build and retrofitting leads to lower consumption requirements for building occupiers. The behaviour of occupiers creates another distinction between profligate use and economical use for a given building configuration. The case for energy efficiency to be included in build and energy consumption behaviours is amplified by the emission implications. Energy efficiency should be the first priority for every energy initiative identified in the ERP. This is not the case at present. In New Zealand, the conversation around energy demand and reducing carbon often focuses on building more renewable energy generation sources. If we use less energy, we will have less need to develop new energy generation but this is not an either/or point, we need both.

We also see that a significant opportunity to reduce emissions and improve energy equity is to develop a far-reaching energy equity programme across all New Zealand homes and buildings. This would cut household bills, most notably amongst those struggling to adequately heat their homes in winter, business operating costs, and provide thousands of local jobs in every area of the country with homes and buildings. An inclusive and well-planned climate transition must have energy equity at its heart.

To accelerate and maximise the opportunities for energy efficiency in our homes and buildings, we recommend that Government implement a comprehensive energy equity programme. The following are tried and tested in New Zealand or overseas and can be implemented relatively quickly:

- The Warmer Kiwi Homes programme should be applied on a wider scale, noting health co-benefits.
- Introduce energy labels for homes.
- Introduce energy labels for commercial office buildings.

2.5 Agriculture (questions 83 – 88)

Headline recommendation: Create an accelerated pathway for the development and adoption of biogenetic methane emissions reduction technologies. This should involve scaling up public and private funding to more than $100m/year by 2025 and lifting the urgency of public and private sector co-operation to invest in a strategic, structured, and long-term commercial orientated approach to reducing biogenic methane emissions.

Abatement potential: 5,400 – 7,300 in budget period 1; 12,600 – 15,400 in budget periods 2 and 3.

Enhanced research and development to reduce biogenic methane emissions

This section outlines a proposal for government and the private sector to jointly fund and substantially accelerate R&D into ruminant animals with an initial focus on pathways to reducing biological methane emissions from agriculture in New Zealand. This work would build on and complement existing R&D activity.

The proposal is built on the idea that a joint public-private approach with a focus on commercialisation of products fit for New Zealand agriculture, and clear benefits of the IP coming back to New Zealand agriculture, will significantly raise the prospect of achieving ambitious methane emissions reduction without compromising stock numbers.

We envisage the model being developed to include collaboration with international firms whose comparative advantages complement New Zealand firms to everyone's mutual advantage. We are optimistic that there is such a model that will attract the required funding from the SBC agricultural group members. Success of such a venture would see New Zealand's methane emissions reduced while agriculture production thrives.

New Zealand's agricultural emissions account for the greatest proportion (48 per cent) of total national greenhouse gas emissions. Of the 48 per cent, around 73 per cent is from biogenic methane created by the ruminant animals we farm. This agricultural emissions profile is both a serious risk to the New Zealand economy and a huge opportunity.

The Risk

The research effort to date and planned for the near-term has not been commensurate with the risks associated with New Zealand falling short of its required contribution to the global 1.5oC target, including a growing direct emissions liability resulting from inaction, and global export market pressures to lower our agricultural emissions inherent in our products, which is already evident. It has also been disproportionate to the opportunity that our emissions profile creates for us to lead in this area of science.[15]

The growing liability is reflected in the Climate Change Response Act 2002 which requires biogenic methane emissions in 2050 to be reduced by 24 to 47 per cent compared to 2017 levels. The CCC reported that reductions of 24 per cent can be achieved using currently available practices and technologies, whereas achieving the 47 per cent would require either technological breakthroughs or significantly reduced agricultural production from livestock and land-use change.

Solely relying on existing technologies and practices to achieve the 24 per cent reductions by 2050 will be a risky strategy, especially when many countries, including our trading partners, are increasingly looking to

reduce methane emissions as a quick way to slow global warming in the near-term.[13] This growing international pressure was confirmed by the COP26 Global Methane Pledge to reduce 2020 methane emissions by 30 per cent by 2030.

We estimate that if the 47 per cent reduction pathway is pursued and assume the CCC's option of achieving that through reductions in livestock numbers, New Zealand faces an absolute loss of output of $412m/year in 2026 growing to $7b/year by 2050 from New Zealand's dairy, beef and sheep sectors. That would equate to a loss of direct GDP contribution of $189m/year in 2026 rising to $3b/year by 2050.[14] [15] This does not include the potentially significant export market impact that could arise from the pressure that is already being felt by our sector's exporters to lower the level of agricultural emissions inherent in our products.

The Alternative

To respond to this international pressure to do more about methane liabilities, the alternative approach for New Zealand, and that our members recommend, is for Government to pursue a much more ambitious biogenic methane emissions reductions pathway than 24 per cent by 2050 by significantly accelerating our research into methane mitigation technologies around an international commercialisation model. Our proposal would see greater emissions reductions while maintaining stocking levels and increasing productivity.

The Opportunity

The opportunity is to work with overseas firms where their comparative advantages complement our local comparative advantages. We propose the use of public private partnerships that are based on a commercial model, orientated towards products fit for NZ systems with a clear framework for the ownership and access to IP.

If New Zealand can develop existing technology leads while also developing alternative options to combat our growing agricultural emissions liabilities, there may be global spin offs. Global rumen emissions were 3,220 MtCO2e in 2017.[16]

As a thought experiment, if the global price averaged $84/tCO2e,[17] there would be an opportunity to avoid total methane emissions liabilities of up to $242 billion per year globally. Therefore, even if New Zealand researched technology were only able to mitigate 10 per cent of methane emissions, there could be a global market effectively worth $242 billion per year but that is not the driver of this proposal.

So, the opportunity is for New Zealand to avoid the serious risks our high levels of agricultural emissions represent, provide ourselves with the R&D platform that could unlock technologies for the rest of the world, as well as maintain and potentially improve our agricultural productivity.

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[13] See https://www.bbc.com/news/world-59137828

[14] For each year, these losses represent the total reduction in livestock numbers compared to baseline, without subtracting reductions that had already occurred in preceding years.

[15] In net present value (NPV) terms these estimates translate into losses from New Zealand's dairy, beef and sheep sectors of $339 m/year in output in 2026 growing to $1.7b/year by 2050. The NPV of the loss of direct GDP contribution is estimated to be $156m/year in 2026 rising to $789m/year by 2050 (Discount rate of 5 per cent is used).

[16] Based on the 2021 Global Methane Report, which states methane emissions from ruminants were 115 Mt in 2017 (table 2.1). This is multiplied by 25 to determine GWP in terms of CO2e.

[17] This is CCC's estimated emissions value for 2025.

The Imperative for public-private partnership

We **recommend** a significant increase in the funding, and an acceleration in the urgency, of co-operation between the business sector and government to invest in a strategic and structured, long-term approach to solving our biological methane problem. It recognises the challenges in agricultural emissions R&D:

- Private sector focus on short term investment horizons.
- Conflict between focus on individual projects as distinct from systems or portfolio approach.
- Sub optimal investment in R&D because of the challenge to monetise innovation.

It recognises government and the private sector brings different strengths to the table but their incentives are aligned. It recognises that benefits flow to the public good and to the private sector partners.

The Proposal

We **recommend** that the Government double funding from $25m/year to $50m/year from 2022 and increase funding further to more than $100m/year from both Government and business by 2025 with the objective of ensuring NZ continues to have the ongoing liberty to run our rumen-based farming.

A possible mix of private and public funding could look as follows, assuming Government share of methane R&D spend mirrors that for overall NZ R&D spend (37 per cent).[18]

Table 1. Spend on NZ agricultural methane R&D ($m p.a.)

	Public	*Private*	*Total*
Current	$8m[19]	$5m	$13m[20]
Proposed target	$64m	$36m	$100m

Table 2. Summary of avoided economic costs (undiscounted values, and present values)

	2026	*2035*	*2050*
Avoided loss of output			
Undiscounted	$412m	$2.9b	$6.8b
Present value	$339m	$1.6b	$1.7b
Avoided loss of GDP contribution			
Undiscounted	$189m	$1.3b	$3b

We **recommend** that the domestic public and private R&D spend would be in addition to revenue sourced from an agricultural emissions pricing mechanism, and until new technologies are brought into the market.

The significantly increased funding could be focused on initiatives such as;

i. Immediately addressing bottlenecks in the availability of key infrastructure for undertaking research into methane mitigation such as chambers, in-field devices and supporting infrastructure for measuring methane.
ii. Providing a continuing pool of trained technicians to use this infrastructure.

[18] This figure is the average for 2013, 2015, 2017, and 2019 based on OECD data on gross domestic spending on R&D (GERD): https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm.
[19] We note that the government contribution to methane-specific R&D spend could be higher, but we were unable to establish this due to absence of detailed data.
[20] This is the average of $10m and $15m mentioned previously.

iii. Building New Zealand's rumen science capability by attracting two leading rumen academics to relocate to NZ along with their research groups.
iv. Establishing a new methane mitigation discovery programme with offshore collaborators (for example, Australia or Ireland) to further develop local IP that has not been fully investigated yet. (This could expand on the work of the Global Research Alliance).
v. Setting up four international science challenges to attract the best teams to the biggest issues to better understand the rumen.
vi. Creating PhD and Postdoctoral scholarships to ensure ongoing supply of local talent.
vii. Boosting enabling programmes to support delivery of novel technologies to market, (i.e. delivery methods that work on farm, low methane genetics, feeds etc).

We note that this would not be constrained to New Zealand based companies. While the focus is on solution that fit the New Zealand farming situation, we envisage some combination of local and international companies involved in the commercialisation process.

Principles guiding the operation of the joint funding mechanism

This initiative is focused on a cooperative approach by business and government with each playing to its strengths. Related pure fundamental government research and industry research likely to assist this initiative would continue. However, the organisation and operational drivers around this joint funding proposal would be based on the following principles:

i. To incorporate strong commercial drivers into the R&D effort rather than simply allocate new (joint) funds to research.

ii. To ensure that existing technologies get to market as quick as possible with whoever is best placed to make that happen even with the use of public funds. The prize is methane mitigation and this programme will balance on public benefits with financial returns on IP commercialisation

iii. To ensure the pipeline of new technology opportunities is kept primed as the vehicle for deploying the funding will need to own or have a say in the IP. It will need to control who has the commercial rights to the extent required to ensure that NZ farmers get access to the products arising from the IP.

iv. Government to accelerate its existing programme to achieve a robust, simple and clear pathway for the regulatory approvals that will be required for the suite of methane mitigating technologies that emerge from the discovery and development pipelines.

To increase the likelihood of achieving product focused outputs that can have an impact it would be optimal to manage this initiative along the lines of primary sector corporate utilising skills such as:

- Market insights into product opportunities and current and future needs and trends to guide the ongoing research strategy.
- An R&D capability that includes both local and international partnerships that allows delivery of capability and capacity in fundamental research, new intellectual property through to highly applied product development.
- Capital raising, funds and asset management, resource allocation and risk management.
- Business development and commercialization skills including flexible, objective driven IP management.

It is likely that some of these capabilities exist in the current agricultural GHG targeting entities but could also be leveraged from local primary sector corporates, what is important is that there is a commercial focus to the investment of available funding.

A report containing detailed information related to the above proposal to advance R&D to reduce biogenic methane emissions is being completed by the SBC/CLC Agriculture Working Group. This report is currently being finalised and will be released in early December.

This proposal (and our SBC/CLC Agriculture Working Group report mentioned above) is focussed on advancing research and development to reduce biogenic methane emissions. However, we also acknowledge the importance of addressing and reducing our nitrous oxide emissions. Therefore, we recommend that Government work with the Primary Sector to consider how research and development should be advanced to reduce nitrous oxide emissions.

Recycling agricultural emissions pricing revenue into agricultural R&D

The He Waka Eke Noa partnership (HWEN) is currently working to develop a pricing mechanism for agricultural emissions. We understand that any proposals pertaining to this area are deliberately excluded from this discussion document and will instead be consulted on by HWEN themselves at the end of this year. However, as mentioned under section 4.5 - research and innovation section, we recommend that any revenue produced from this pricing mechanism should be hypothecated into research and development focused on reducing agricultural emissions.

A long-term agricultural aspiration strategy needs to be developed

We recommend that Government in partnership with Primary Industry develop a long-term aspiration strategy for New Zealand agriculture. This would enable government to communicate both with New Zealand farmers and communities about the future of our agricultural sector in a low-emissions world, specifically what we need to be doing and also to consumers about what we intend to do.

This might be along the lines of the *Pathway to Dairy Net Zero* (which Fonterra and LIC are both signed up to) which was released by the Global Dairy Platform highlighting the aspirations of dairy globally.

A New Zealand aspiration for agriculture should come from a group with cross-agriculture sector representation, with public farmer consultation included. The He Waka Eke Noa partnership is the closest we currently have that meets the requirement as it has governance level and working group arrangements.

The long-term aspiration should look beyond the timeframes of He Waka Eke Noa, which is very task focussed on relatively short-term milestones (work programme to 2025). An articulation of a long-term aspiration for New Zealand agriculture could sit alongside the narrative around forestry and land use and factor in what agriculture could look like if we adopt the ruminant research programme and aim for a 47 percent reduction in biogenic methane.

Encouraging uptake of on-farm mitigation practices ahead of implementing a pricing mechanism for agricultural emissions

We recommend that on-farm mitigation practices are clarified and defined. This will better frame what has to be done, the size of the task, and government's roles. The real challenge lies in the absence of mitigation options, especially for biogenic methane, with or without emissions pricing.

Regenerative agriculture has a role to play in supporting the agriculture sector's low-emissions transition, as well as improving the sector's resilience to the impacts of climate change.

Reducing barriers to changing land use to lower emissions farming systems and products

We **recommend** that a coherent forestry strategy is established that addresses the ongoing need to offset carbon emissions, and balances between exotics and natives and the need for the development of an accompanying bioeconomy.

2.6 Waste (questions 89 - 99)

Headline recommendation: Adopt a target to reduce waste biogenic methane emissions by 40 per cent by 2035.

We **support** the CCC's recommendations in this area, including the recommended target to reduce waste biogenic methane emissions by 40 per cent by 2035. We do note that New Zealand's waste emissions have reduced 19.3 per cent since 1990, making it the only emissions source that is currently on the right trajectory. We recognise the role and importance of the circular economy in contributing to these emissions reductions, and therefore encourage measures to continue this mitigation trajectory for waste.

We **support** more funding for education and behaviour change initiatives to help households, communities and businesses reduce their organic waste. Waste can be seen as complicated and efforts to enhance consumer understanding and compliance and efforts to see how particular interventions fit within the wider picture.

We **recommend** Government work with the private sector to develop an approach to standardisation of collection systems that takes into account the range of collection systems in operation.

We also reiterate our previous recommendation to develop national standards for waste collection, inclusive of material type for collection and collection receptacles.

We **agree** the proposals outlined in the discussion document should also extend to uncontrolled activities, such as, farm dumps, open burning and unmanaged disposal sites given the long history of reductions from managed disposal sites. Farm dumps have not seen emissions reduce over the last 30 years. To continue this trajectory, the next focus after 2030 should be the other sources of waste emissions as seen in table 12 of the consulting document e.g., farm dumps.

In addition, we **recommend** that Government investigates how the waste sector fits into the bioeconomy and what should be occurring with what waste, where, in order to provide the least cost solution for New Zealand overall. Items to consider include:

- Sources of different types of waste.
- Whether there are thermal/electrical loads around high waste areas.
- Whether should compost be prioritised over other organic disposal methods.
- Whether should anaerobic digestion be prioritised over other organic disposal methods.
- Whether AD/pyrolysis be utilised to provide inputs into energy systems, including:
    - Local energy hubs for large industries.
    - Liquid fuel consumption market, including petrol, diesel and LPG.

2.7 F-gases (questions 100 – 106)

Headline recommendation: Expand the GIDI fund to support facilities that are looking to upgrade their facilities to lower GWP gases.

We **support** the CCC's recommendation that emissions from fluorinated gases must be reduced. However, there are some constraints on the speed with which SBC members can reduce emissions from fluorinated gases which should be taken into account when setting the target dates and limits.

Phasing down the bulk import of HFCs more quickly than required under the Kigali Amendment

The discussion document allows for Government to "fast track progress through a cross sector reduction of HFC refrigerants in heating and cooling systems". The transition of most models now are achievable but solutions are yet to emerge for some Frozen Carbonated Beverage (FCB) and Ice Machines which still use HFC.

If progress is fast-tracked, we **recommend** that Government provide financial assistance for the purchase of equipment required to service and maintain hydrocarbon equipment safely given it is a flammable gas. We also **recommend** that Government provide subsidies and rebates like they do for cars and heat pumps. For example, the New South Wales state Government in Australia offers a commercial refrigerator rebate.

Restricting the import or sale of finished products that contain high-global warming potential HFCs, where alternatives are available

SBC/CLC members generally **support** restricting the import or sale of finished products that contain high-global warming potential HFCs to the extent that there are alternatives available that can be safely serviced and maintained.

In addition, SBC/CLC members **support** utilising lower global warming potential refrigerants in servicing existing equipment providing the practice is compliant.

The timing for introducing these measures will be critical given the need to expand the skilled labour workforce to meet demand installing, retrofitting, and servicing refrigerant systems products, delays in the global supply chain for the technology due to Covid, the need for technical testing, and the availability of suitable refrigerants.

We **recommend** that Government work with the private sector to revise the proposed timelines and GWP limits on certain application categories to reflect the varying size and scale of our members' operations.

During the phasing in of the new technology described we **recommend** that the Government consider the following ways to support the acceleration of refrigerant emissions reductions:

- listing refrigerant technicians as a skills shortage to grow and relieve a pressured and small group of technicians currently servicing the industry;
- subsidisation or rebate schemes for replacement of legacy systems with equivalent lower GWP systems;
- improved leak tightness;
- reduce the amount of refrigerants used in equipment; and
- putting in preventative maintenance programmes.

We also recommend that Government consider natural refrigerants, which are available already (R774 and R290) and commonly used, as alternatives to HFC refrigerants that New Zealand could utilise (noting that additional training and risk management may be required, particularly for R290 given it is a flammable refrigerant).

We recommend that Government provide funding for facilities that are looking to upgrade their facilities to lower GWP gases. EECA is providing significant funding and support for industrial processes to transition away from fossil fuel use through the GIDI Competitive Fund. This fund could be extended to include upgrades for F-gases.

2.8 Forestry (questions 106 – 114)

Headline recommendation: Include in the ERP a specific action to investigate what policy actions would encourage native plantings and balance the agricultural sectors on going requirement for land with the case for forestation.

We agree that forestry can provide a buffer in case other sectors of the economy under-deliver reductions. However, we think the focus should still be maintained on reducing gross emissions across the economy.

We believe forests have an important role to play in achieving the 2050 target but that this role should be balanced against the alternative uses for land, including agricultural production, and the needs of a bioeconomy in the all-energy strategy. (See also our commentary on bioeconomy in section 4.7, given the role forestry will play in biomass feedstock supply.)

However, exotic afforestation may not deliver many of the co-benefits that indigenous forests do, and focus should remain with permanent forests. We therefore support Government's commitment to maintain effective incentives for planting new forests of the right type and for the right purpose. We recommend Government investigate what policy actions would encourage native plantings whilst recognising the role that exotic forestry will play in our transition.

Finally, we note the distinction between forestry and forests. Native biodiversity provides benefits beyond carbon sequestration. We support pursuit of mitigation policies that align with and support the delivery of the New Zealand biodiversity strategy and the NPS on biodiversity. See section 3.1 for more commentary on this.

3. Meeting the net-zero challenge

3.1 Transition pathway (questions 1-7)

Headline recommendation: Establish:

- A Climate Advisory Group to advise the Climate Change Response Ministers Group comprising business and other leaders from across the economy.
- A regular forum between Chief Executives from the public and private sectors on finalisation and implementation of the ERP.
- Sector-specific collaborations between government and business to respond to individual decarbonisation challenges.

We agree that the ERP, and our country's low carbon transition, should be guided by a set of principles.

New principle – close collaboration between business and government to develop and implement the ERP

In addition to those principles listed, we recommend, as the CCC recommended, the addition of a principle relating to working in partnership with business. We agree that everyone has a role to play and welcome the reference in the discussion document to the Government's intention to work with all of society – including business – to implement the plan.

It is clear that there is much work to be done to develop an ERP that meets the emissions budget for the first period. But our members are ready to step up to the challenge to help flesh out the ERP and close the ambition gap. Many are already doing so: the CLC's Third Anniversary Snapshot report showed that these businesses have committed to invest $9.5 billion over the next five years to reduce their emissions.

We are ready to work alongside the Government to develop a plan that will deliver. For this to be successful, it will require a genuine partnership between government and business because only by working together will we be able to bend New Zealand's emissions curve in the short amount of time we have left. In our CCC submission we recommended, and we recommend here again, that government partner with business to allow for the co-development of solutions.

To date the partnership has been more of the traditional kind – i.e. one where SBC and CLC respond through submissions – rather than a collaborative process where sustainable businesses bring ideas to the table during the development of the ERP. This partnership should be focussed on the generation of outcomes to achieve the desired future state in 2050, providing pace that enables the market to respond and adapt, and flexibility in policy to enable business to shape solutions that work on the ground.

We recommend the following practical ways for business and government to work more closely and effectively together to drive the transition to a low-emissions future for New Zealand:

i. A Climate Advisory Group to advise the Climate Change Response Ministers Group comprising business and other leaders from across the economy as the current ERP is developed and implemented.

ii. A regular forum between Chief Executives from the public and private sectors on finalisation and implementation of the ERP. For example, SBC would be very happy to facilitate regular discussions

between the public sector's Climate Change CE Board and Chief Executives from across our membership.

iii. **Sector-specific collaborations** between government and business to respond to individual decarbonisation challenges. There are some areas where there are natural forums or formats for these collaborations, and others where innovative approaches might need to be explored.

We have highlighted practical opportunities for collaboration between business and government on specific challenges using boxes like this one throughout this document.

We also **recommend** specific consideration as to how government can best engage with small and medium enterprises to ensure their voices are heard in the low carbon transition.

A path that is clear, ambitious and affordable

We **support** the principle that our transition path should be clear, ambitious and affordable. We **recommend** this principle be augmented with the addition of the need for a pathway that is also credible. Over the last three decades, New Zealand has failed to reduce its emissions but rather has seen them rise like no other developed country. As a country, we are about to adopt domestic emissions budgets. The Government has also announced an enhanced 2030 Nationally Determined Contribution (NDC) under the Paris Agreement.

Now is the time to translate ambition into action and develop a credible plan to achieve our domestic emissions budgets as well as our new NDC. New Zealanders need to see realistic pathways to achieve both of these targets. In relation to the NDC, this includes transparency on the role of offshore mitigation, possible sources and cost of this mitigation, and who will bear the cost for their purchase.

The role of nature-based solutions

We **support** the consideration of environmental benefits beyond mitigation when implementing the ERP which is identified in the ERP discussion document as one of the 'guiding principles' for the ERP. We **support** investigation of mitigation co-benefits through nature-based solutions including, for example, blue carbon, and **recommend** more clarity be provided on enabling measures and mechanisms that will be put in place.

There are a range of international guidelines that can be drawn on to develop New Zealand-specific frameworks, such as the Sustainable Blue Economy Finance Principles and UNEP FI Guidance to support investors to make investments that are directed towards sustainable development.

3.2 Working with our Te Tiriti partners (questions 8-12)

Headline recommendation: Government work in partnership with Iwi/Māori and local government to develop a strategy to ensure that the principles of Te Tiriti o Waitangi are embedded in subsequent ERPs.

We **support** a genuine, active, and enduring partnership with iwi/Māori, including iwi/Māori business, as reflected in our submission to the CCC.

The CCC recommended, and we **support** Government working in partnership with Iwi/Māori and local government to ensure that the principles of Te Tiriti o Waitangi are embedded in this emissions reduction plan. This is not currently the case and we support ensuring this vitally important work forms a key part of the next ERP.

3.3 Making an equitable transition (questions 13-20)

Headline recommendation: Complete the Equitable Transitions Strategy by the end of 2023 in partnership with business and other stakeholders.

We **support** a fair, equitable and inclusive transition to a sustainable, climate-resilient and zero carbon Aotearoa New Zealand. Achieving equity in the transition is central to creating social licence for an ambitious and enduring pathway to a zero carbon future in which people and nature thrive.

SBC and CLC therefore strongly **support** the recommendations of the CCC in this area.

Specifically, we **recommend** Government to work in partnership with business and other social partners to develop an Equitable Transitions Strategy that includes a concrete articulation of the future that New Zealand is working toward and the policies that will support us to get there. To that end:

i. A Terms of Reference and timeframe for the Equitable Transitions Strategy should be included in the ERP. This must be underpinned by robust analysis and economic modelling to ensure all New Zealanders understand the likely state of our economy in 2050 and which sectors will be most impacted by the transition.

ii. A process to develop the Strategy that is inclusive and ensures all New Zealanders – including business people – have a say in the policies, plans and actions needed to support vulnerable communities and those most impacted by the transition.

iii. Acceleration of the Strategy's development. Whilst there is a need to ensure a robust process, we cannot wait until the end of the first budget period to deliver this work. This work should be complete by the end of 2022. Businesses, workers and communities are being impacted now. They need a plan for the future we can all get behind.

iv. In addition, there are concrete actions that can be taken now to support equity in the transition pending the development of an Equitable Transitions Strategy.

We explain our recommendations in each of these areas in more detail below.

Terms of Reference for an Equitable Transitions Strategy

New Zealanders need clarity on the likely future cost of carbon and need to adapt to a changing climate, the impact that will have on key sectors, and the future we collectively wish to shape based on the economic transition that will require. New Zealand needs to develop a transition pathway that is inclusive and ensures no one is left behind.

We **recommend** the final ERP contain a Terms of Reference for the Equitable Transitions Strategy. The Terms of Reference should:

i. Commission economic and social analysis to inform the development of the Strategy and ensure New Zealanders understand which sectors will be most impacted by the transition.

ii. Articulate how the Strategy will be developed in partnership with Iwi/Māori.

iii. Describe at a high level the process for development of the Strategy.

iv. Link the Strategy's development with other key governmental strategies, policies and plans.[21]

v. Provide for the following critical components of the Strategy:

   a. Adapting the education system to equip New Zealanders with the skills needed for a low emissions future.
   b. Supporting workforce transition, including redeploying and upskilling workers from high-emissions sectors to low-emissions sectors.
   c. Factoring distributional impacts into climate strategies and policies.
   d. Mobilising finance and funding for initiatives that support an equitable transition by redirecting a portion of hypothecated ETS revenue into a contestable fund.

SBC/CLC would welcome the chance to engage on this Terms of Reference on behalf of its members and be part of the development of the Equitable Transitions Strategy.

Economic analysis to inform the development of the Equitable Transitions Strategy

The transformation of the economy from where it is today to a decarbonised and climate-resilient one will take the form of a major structural change. We **recommend** that Government commission analysis that explores the likely future state of the economy based on the transition pathway, to form a clear articulation of the future state that policy needs to respond to.

The last time New Zealand made a major structural change, in the mid-1980s the focus was the need for major economic change with sudden regulatory shifts rather than ordered, evidence-based programme with an equitable transition as a core consideration. This "series of disequilibria…in a relatively compressed timeframe" resulted in "deregulatory momentum" but resultant negative economic and socioeconomic impacts. [22]

We have an opportunity with the low carbon transition to learn from the past. The Paris Agreement incorporates the concept of a "just transition". This is elaborated in International Labour Organization's (ILO) 2015 Guidelines for a Just Transition which describes a process "towards an environmentally sustainable economy, which "needs to be well managed and contribute to the goals of decent work for all, social inclusion and the eradication of poverty".

In order to design an orderly transition, we need to create a shared and unifying vision of the future we are working towards, grounded in economic reality. For example:

- As the discussion document states, the ETS will see an emissions price to drive investment and behaviour change to reduce gross emissions. The future price of emissions is not only relevant to business decision making but also the pace of the transition and our ability to collectively ensure it is an equitable one. A fast-rising carbon price risks impacting most lower income households without the flexibility to pay for new vehicles, appliances, and other technologies. We need to understand the likely price path for carbon in New Zealand in order to better understand who will

[21] This includes those existing and in development. For example, the Government's draft Digital Strategy, Infrastructure Plan, National Transport Network, Freight and Supply Chain Strategy, National Adaptation Plan.

[22] Lewis Evans, Arthur Grimes, Bryce Wilkinson, David Teece (1996) Economic Reform in New Zealand 1984-95: The Pursuit of Efficiency Journal of Economic Literature, Vol. 34, No. 4 (Dec., 1996), pp. 1856-1902

be impacted to better understand what complementary measures will be required in which sectors.

- New Zealand is setting out on a process of carbon budgeting under the Act. As those budgets decrease, and the amount of carbon we can emit across the economy is limited, we will be forced as a country to embrace a discussion on highest and best use of CO^2_e within our budgeted envelopes. This will see some industries impacted adversely while others grow and still new industries are established. We need to better understand what these sunset, growth and 'sunrise' industries will be in order to best support businesses, employees and communities through the transition.

This work should form the starting off point for developing the Equitable Transitions Strategy.

Accelerate the timeframe for the Strategy's development

The discussion document does not specify the process or timeframe by which the Equitable Transitions Strategy will be developed and implemented, with commentary stating that the strategy will be "drafted over the coming years". The Commission's recommendation that the Strategy is developed during the first emissions budget period would see the Strategy delivered by mid-2024.

We recommend that this timeframe be brought forward with work on the Strategy to commence now, with the development of its Terms of Reference, and delivery at the end of 2023 at the latest. For an equitable transition to succeed, substantive action needs to start now and include long-term planning to avoid negative impacts, and make sure costs and impacts are understood and anticipated. Rather than waiting for the ideal Strategy to be developed over the course of years, we recommend its development and publication be fast-tracked and that the Strategy remains a living plan that evolves and is updated at regular intervals.

Accelerating the introduction of the Equitable Transition Strategy will enable its development to be linked to the Government's Economic Plan (due August 2022), National Energy Strategy (2022) and National Adaptation Plan (August 2022).

We have practical suggestions about how business, along with other social partners, can collaborate with government to develop the Strategy in this timeframe, which we would be happy to discuss.

3.3.1 Actions to be taken now

In addition to accelerating the development of an Equitable Transitions Strategy, we recommend Government to take certain concrete actions now to support impacted firms, employees, and communities and support their transition pending development of the Strategy.

We also support actions to be taken now to put equity at the heart of the transition and ensure every policy decision is viewed through not just a mitigation lens but also a just transition one.

In addition to other measures mentioned in the discussion document we **recommend** Government take immediate steps to:

- Consider all climate policy decisions through a just or equitable transition lens. This could be done by expanding the Climate Impacts of Policy Assessment to include consideration of the impacts of the policy on equity in the transition to a zero-carbon economy.
- Develop a method of monitoring and review of impacts of policy on the equitable transition. This could build on existing frameworks applied to measure wellbeing such as the *Living Standards Framework* and *He Ara Waiora*.
- Partner with business groups, including SBC and CLC, to develop business-to-business solutions to help ensure equity in the transition across the supply chain, e.g. through scalable prototype projects to:
    - build capability within companies across the supply chain to transition toward lower emissions business models and manage workforce and other transition implications; and
    - develop proactive skills and employment pathways to keep displaced workers connected to decent, meaningful work.

CASE STUDY: REGIONAL COLLABORATION ON THE FUTURE OF WORK

SBC members and CLC signatories are already leading out to ensure our low carbon transition has people at its heart.

One example is a collaboration Christchurch International Airport Limited (CIAL), Lyttleton Port Company (LPC) and Orion Group are all taking part in. They are three of 17 Christchurch City Holding Limited organisations using a shared platform, Hive, which is helping them to prepare for the future of work and the challenges that poses for their people and communities.

Created by FutureWork Studio, the shared platform allows businesses like CIAL, LPC and Orion to leverage the diverse capabilities that already exist within their organisations to share that talent and support skills matching. It also extends to building the capability within organisations by creating skills development pathways as well as new ways to identify and retain talent at a time when skills shortages are becoming an increasingly critical issue.

4. Aligning systems and tools

4.1 Government accountability and coordination (questions 21-23)

Headline recommendation: Establish a central unit within the Department of Prime Minister and Cabinet to oversee the interdepartmental climate change response.

The CCC identified a need for close coordination amongst relevant government agencies and departments, and for roles and expectations of these and other agencies to be set out, and accountability mechanisms defined. We **supported** that recommendation. We also called for a clear and efficient structure – and appropriate resourcing – for this coordination, which should allow for policy to be developed in close partnership with the private sector at the working level.

We now build on that recommendation. Climate change is the defining challenge of our time. Achieving a world limited to 2°C of warming, let alone 1.5°C in line with the Act, is going to require a global economic transformation on an unprecedented scale. We encourage Government to respond to climate change as the crisis it is.

The machinery of government must reorganise itself to be able to respond to the climate challenge. It will take time to get the right structures, mandates, and skills in place to unlock an effective all-of-government response to climate change. In order to be effective, the central government response must be resourced appropriately. As the coordinating agency for the climate change response, the Ministry for the Environment needs to have increased funding to fulfil its coordination role across the public sector.

Pending that recalibration, we **recommend** a different approach to the status quo. The Government has risen to the challenge of crises of recent times – such as the COVID-19 pandemic and the 15 March terror attacks – by activating government's crisis response and establishing a central unit within the Department of Prime Minister and Cabinet to oversee the interdepartmental response. We see a need for a similar approach to be taken in relation to climate change and **recommend** the Government to move swiftly to establish a structure empowered to allocate resources and take decisions necessary on climate policy with the urgency this challenge demands.

We are pleased to see that Government picked up on our recommendation to undertake a cross-agency stocktake of existing emissions reduction measures through producing the discussion document on the ERP. This provides a good foundation for the development of new policies to meet the emissions budgets. We look forward to engaging with Government on those through the ERP.

In support of that, we **support** the CCC's *Enabling recommendation 2: Coordinate efforts across Government,* and in particular, the recommendation to establish Vote Climate Change as a specific multi-agency appropriation, which consolidates existing and future government funding for climate change mitigation and adaptation activities.

We also **support** the Commission's recommendation regarding expansion of the *Climate Implications of Policy Assessment* tool to consider climate change in the development of all new policies, regulations, and fiscal proposals. We **recommend** that Government consider broadening this recommendation to specify that this includes considerations relating to mitigation, adaptation and an equitable transition. See also section 3.3– equitable transitions.

4.2 Funding and financing (questions 24-27)

Headline recommendation: Government to support measures and mechanisms that overcome the challenges of financing projects that contribute to emissions reductions but for which monetising the emissions benefits is not possible. These projects may be technically challenging or projects that simply require more effort than the low hanging fruit projects banks and other finance companies are more likely to assist.

Support for CCC finance recommendations

We support Government taking the following actions recommended by the CCC to mobilising finance for low emissions and climate-resilient investments:

- Investigating and developing actions government can take to help mobilise private sector finance.
- Exploring the extension of the mandatory climate-related disclosure regime to cover a broader range of activities, for example, public entities at the national and local level.
- Evaluating the benefits of extending mandatory climate-related disclosure to cover emissions enabled by loans, from financial institutions, over a certain threshold.

We welcome the recent announcement of the intention to issue sovereign green bonds in New Zealand. We also support the work of Toitū Tahua: Centre for Sustainable Finance in this area. In particular, we encourage Government to support implementation of the Sustainable Finance Forum's 2030 Roadmap, including through a Whole of Government Sustainable Finance Strategy, as well as the recommendations in Toitū Tahua's response on the ERP discussion document under the headings of:

- Setting the long-term strategic direction, industry, infrastructure and investment planning and coordination.
- Laying the foundations for a sustainable financial system.
- Enabling policy and regulatory settings for investment in the net-zero carbon transition.
- Measures to connect available capital with investible projects and products.
- Promoting impact-led investment models.

Role of Government in mobilising capital to target emissions outcomes

Key barriers our members report in relation to flow of private capital into low emissions investment in New Zealand include uncertainty regarding Government policy, clarity on low emissions investment options and return on investment relative to higher emissions alternatives.

The Government can play an important role to support business to bridge the gap between activity that is GHG-emitting and equivalent activity that reduces GHG emissions by monetising the value of the emission reduction outcomes.

In many instances, externalities (benefits) of decarbonisation are not directly quantifiable in dollar terms – despite clear benefits to intergenerational wellbeing and hence to the economy – so there is a case for governments to meet that gap so investment proceeds. The ETS imposes obligations on some emitters and monetises emissions reductions, principally carbon sequestration from forestry. However, the effective ETS price does not completely reflect the full cost of carbon, nor does it monetise the mitigation of risk associated with climate adaptation.

There are also market failures such as lack of information or high transaction costs holding up potential decarbonisation projects that, again, governments can play a role in compensating for. The Green Investment Fund is an example of government assisting in this case.

We see an expanded role for government to bridge the gap between activity that is GHG-emitting and equivalent activity that reduces GHG emissions by monetising the value of the emission reduction outcomes. The assistance could take several forms, and these would be project specific.

We recommend Government develop a programme of results-based procurement or financing. This would see the Crown pay for the delivery of a service that delivered an agreed emissions outcome but would not pay the full amount if pre-agreed outcomes are not achieved. The same would apply to an outcome-based financing arrangement. For example, an environmental impact bond could be used to fund biodiversity improvements that both sequester carbon and enhance land resilience. It could also be linked to employment outcomes to ensure the projects help grow permanent jobs.

The benefits to the Crown of taking this include increasing the ability to:

- mobilise capital to drive impactful change.
- innovate and let private capital take the risk, with the Crown securing long term benefits.
- obtain data from pilot projects that enable success to be scaled up nationally.
- avoid approaches that prove to be unsuccessful (learn from mistakes) with the benefit that private capital has funded it, rather than the Crown.

The above could be scoped and implemented through the business/government partnership structure mentioned in section 2.1.

4.3 Emissions pricing (questions 28-32)

Headline recommendation: Provide certainty on the projected price corridor for NZUs under the ETS by working with business to develop a shadow carbon price to inform investment decisions.

Emissions price paths to inform investment decisions

The discussion document states "the New Zealand Emissions Trading Scheme [ETS] needs a higher emissions price to drive investment and behaviour change to reduce gross emissions." It appears from the document that the Government has accepted the CCC's advice about the rising price corridor for New Zealand Units (NZU) under the ETS.

SBC presented that corridor in our CCC submission using the following chart which shows the current default auction reserve price and cost containment reserve price. This has been overlaid by the auction reserve price and cost containment reserve prices advocated by the Commission as follows:

i. Increase the cost containment reserve trigger price to $70 as soon as practical and then every year by at least 10% plus inflation.
ii. To maintain continuity with recent prices, immediately increase the auction reserve trigger price to $30 as soon as practical, followed by annual increases of 5% plus inflation per year.

The carbon price that reflects the investment signals is shown in bold compared with the carbon price currently used in the economic modelling.

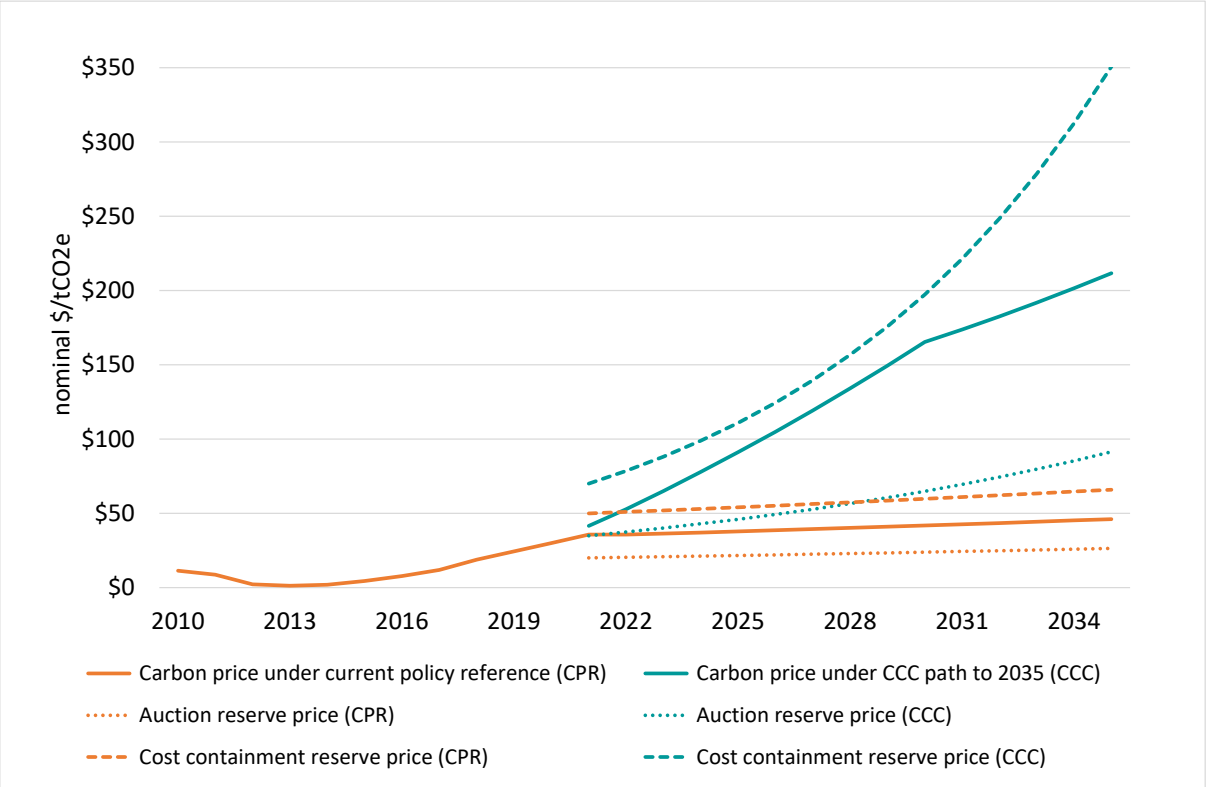

Figure 1. Current and proposed reserve auction prices and cost containment reserve prices

We agree, as the discussion document says, that achieving a high-value, resilient economy will require clear signalling of the low-emissions pathway. Understanding the likely price path for NZUs is key to that signal, and the ability of businesses to be able to plan. The Commission recommended changes to the cost containment reserve trigger price and the auction reserve trigger price in the ETS, as well as signalling the target-consistent long-term abatement cost values government and business should factor into policy and investment analysis.

We recommend that Government provide clarity on the likely future price corridor for NZUs under the NZ ETS and the major assumptions underpinning that work. We recommend Government work closely with the private sector to develop a shadow price of carbon which represents a realistic future price path that businesses can consistently and reliably factor into decision making.

Forestry should not delay gross emissions reductions

We agree that the treatment of forestry in the NZ ETS should not result in a delay, or reduction of effort, in reducing gross emissions in other sectors of the economy.

However, we also recognise that forestry will play an important role in achieving the 2050 net-zero target, providing one of the most cost-effective ways to capture carbon over coming decades, and allowing other cost-effective technologies and methods enough time to be developed and made available. Examples of these technologies and methods could include methane inhibitors, as discussed in the agriculture section, and lower emissions sheep and beef genetics, particularly the use of genomics as well as a wide variety of other possibilities.

We **support** the Commission's recommendation to transition from a reliance on exotic forests to permanent native forests by 2050. The ETS provides little incentive for landowners to use native afforestation to capture carbon. At the same time, higher ETS prices would accentuate the additional value that landowners can get from exotic afforestation due to their significantly higher efficiency in capturing carbon compared to native afforestation.

We **recommend** that the ERP includes a specific action to investigate what policy measures would incentivise native plantings. Besides the ETS, incentivising native afforestation could bring other benefits, including ecosystem benefits such as improved biodiversity and water quality, where these benefits are likely to outweigh the costs. For example, pricing signals could be used alongside land use planning to enable councils to regulate carbon farming that would limit the conversion of productive land to permanent exotic forests.

Constraints on forestry within the ETS do need to be balanced with maintaining investor confidence. Many large emitters with ETS obligations have entered into long term investments to have a diversified portfolio approach to ETS compliance. Care needs to be taken not to shock the system and cause uncertainty in the ETS.

Role of voluntary carbon markets

Voluntary carbon markets (VCM) enable companies to invest in and purchase carbon credits from activities that reduce or remove CO_2 emissions as part of their climate strategies. To facilitate private sector climate action outside of the compliance market, VCM will need to scale rapidly, but with integrity. We **support** efforts to develop a high integrity voluntary carbon market for New Zealand to keep us aligned to international best practice and enable private sector entities to take credible and quantifiable climate action.

4.4 Planning (questions 33-35)

Headline recommendation: Consider the CCC's advice on planning through the RMA reform process.

We **support** consideration of the recommendations of the CCC in this area to enable emissions reductions through changes to urban form, function and development. We look forward to engaging in detail on the integration of climate considerations into planning decisions through the RMA reform process.

4.5 Research, science and innovation (questions 36-41)

Headline recommendation: Recycle ETS proceeds into research and innovation targeted specifically at emissions reductions and achieving an equitable transition.

Research, science and innovation will have a critical role in enabling the reduction of New Zealand's emissions, particularly in those areas where we do not have existing technology and approaches to meet the gap. We support the role of research, science, and innovation in helping us achieve an inclusive, sustainable and productive future.

In particular, we **recommend** proceeds from the ETS be used for emissions reduction innovation and R&D and for achieving an equitable transition. Potential uses include:

- Supporting development of the complementary measures to the Energy Efficiency and Conservation Authority's (EECA) Government Investment in Decarbonising Industry (GIDI) Fund mentioned in section 2.2.1 – process heat;
- Introducing results-based procurement of financing to drive down emissions as mentioned in section 4.2 – funding and finance, alongside investment crowded in from the private sector, or to expand application of the Green Investment Fund.
- Establishment of a national centre of excellence to drive innovation toward low emissions outcomes in New Zealand, administered by central government and modelled on successful public-climate innovation partnerships internationally, such as the Climate-KIC model used in Europe and Australia. The Climate KIC provides a hub for building networks of expertise, leveraging funding, developing capacity and catalysing innovation. The Climate KIC has supported the development of over 1,500 innovation solutions and secured nearly €1 billion of capital.[23] This modelled is being replicated regionally within New Zealand, such as via Auckland Unlimited's Climate Innovation Hub. We also point to the Ākina Foundation's recommendations in response to the ERP discussion document encouraging the Government to facilitate an innovation eco-system that supports climate focussed start-ups.

We would like to see government partner with industry to finance and drive innovation to respond to challenges that are too large to be absorbed or addressed by the private sector alone. We support a collaborative business/government mission-oriented approach to these grand challenges as detailed elsewhere in this response, for example section 2.5 (agriculture) in relation to research and development into biogenic methane and section 2.1.3 (freight transport) in relation to Sustainable Aviation Fuel, zero emissions aircraft and the role of green hydrogen in decarbonizing heavy freight.

Support for Climate Change Commission recommendations

In addition, we support the recommendations of the CCC to Government on accelerating the transition through innovation by:

- giving high priority to low-emissions research, development and innovation within public science and innovation funding approaches.
- introducing targeted measures to support low-emissions research, development and innovation.
- creating an enabling regulatory environment for new and emerging low-emissions industries and sectors, including removing barriers for Iwi/Māori to participate in these opportunities.

[23] https://www.climate-kic.org/

4.6 Behaviour change – empowering action (questions 42-44)

Headline recommendation: Deploy a marketing strategy similar to that developed for the COVID-19 response to drive behaviour change, building awareness and buy-in to the value of an equitable transition to a zero carbon, climate resilient society.

We **support** the CCC's recommendations in this area, being:

- Including behaviour change in the design of climate change policies and programmes, in order to enable New Zealanders to make choices that support low-emissions outcomes.
- Identifying a lead agency and establishing a dedicated, well-resourced fund for education and information to promote and socialise the wide-scale behaviour changes needed. This should involve communities, Iwi/Māori and local knowledge.

We see government as having a critical role in supporting behaviour change to drive systems change. Price signals and policies will not change the behaviour of the entire population as much as is required to deliver the Commission's proposed pathway. There is also a risk that behaviour change during the transition lags the price signals and policy actions which may lead to a higher cost of the transition and a slower pace to meet the emission targets. EECA's Gen Less communications platform is a good example of a potential vehicle for this kind of messaging. We would like to see expanded Government education and public awareness initiatives to encourage behaviour change required to achieve the transition and ensure it is equitable (see section 3.3 – equitable transitions).

We, like many other submitters on the CCC's advice, see government's communications around COVID-19 as an example of a successful national effort to engage the public and address a problem, and wanted to see similar efforts to address climate change. We **recommend** Government deploy a marketing strategy to drive behaviour change, building awareness and buy-in to the value of an equitable transition to a zero carbon, climate resilient society.

We **recommend** the public sector unit we propose in section 4.1 (Government accountability and coordination (questions 21-23) oversee the development and deployment of this strategy. Part of this could include a stocktake of existing programmes for communicating around emissions reductions with New Zealanders (examples like GenLess) to ensure we build on and learn from what is already working (or not).

SBC/CLC members have valuable insights into consumer behaviour and tools to drive change. We would be willing to work with Government to develop this strategy.

Tools to assist with behaviour change

We support development of tools that can be used to help a wide range of businesses and consumers understand the emissions associated with different options that can help inform investment options. We note that these can often be business-led, such as the Sustainable Business Network's widely-used Climate Action Toolbox. We **recommend** the introduction of further policy tools to support supply-chain emissions management, such as:

- Support the development of methodological standards and create incentives for the calculation, exchange and display of environmental data, ensuring all types of stakeholder are considered
- Set guidelines for the production of environmentally responsible products (designed to last, reusable, minimal emissions associated with production). These guidelines should consider the role and importance of the circular economy.
- Provide investment in the research to achieve a successful digitalisation for a green economy.

These policy measures - together with industry collaboration - can help measure, manage and decarbonise scope 3 emissions, contributing to verifiable product-level emissions data.

4.7 Moving Aotearoa to a circular economy including bioeconomy (questions 45-51)

Headline recommendation: Develop a thriving, climate-resilient bioeconomy that reduces emissions through displacing fossil fuel-derived production materials and energy sources. The bioeconomy strategy should include the following specific measures:

- Support the development of biomass supply chains through developing a demand survey and a sequestration model to inform a biomass roadmap;
- Undertake a programme to identify solutions to supply the North Island gas network with renewable gases as part of a wider bioeconomy.

Circular economy

We support policy measures to move New Zealand to a circular economy. We point to the submissions made by our partner organisations Circularity and the Sustainable Business Network on this issue. In particular, we echo Circularity's four key steps required for the transition:

i. Lead from the top with bold ambition, including learning from approaches large emitters and comparable economies have taken to the circular economy.
ii. Define and communicate an Aotearoa specific narrative of the circular economy.
iii. Build our knowledge and capability in the circular economy specifically for youth, Māori and New Zealand businesses.
iv. Map, measure and track our progress to achieving circularity across our industries.

A number of SBC/CLC members are taking part in Circularity's XLabs programme to build awareness of how the circular economy can be practically applied at a business level; breakdown industry silos and enable system-wide collaboration required to unlock circular solutions; and build connections to help them move from linear to circular. We recommend Government investigate how models like XLabs could be replicated or scaled to enable a wider range of businesses to benefit from these programmes.

Bioeconomy

We strongly support the CCC's recommendation to develop and deliver a strategy for a thriving, climate-resilient bioeconomy that reduces emissions through displacing fossil fuel-derived production materials and energy sources. We are pleased to see this reflected in the discussion document.

The bioeconomy is embedded in the overarching concept of a "circular economy with a thriving bioeconomy". Whilst a bioeconomy is a facet of the circular economy, it will be a significant piece of work in its own right and deserves greater attention to detail.

We **recommend** much more comprehensive and accelerated work to map out and put in place enabling regulation for the New Zealand bioeconomy. Specific recommendations are set out below.

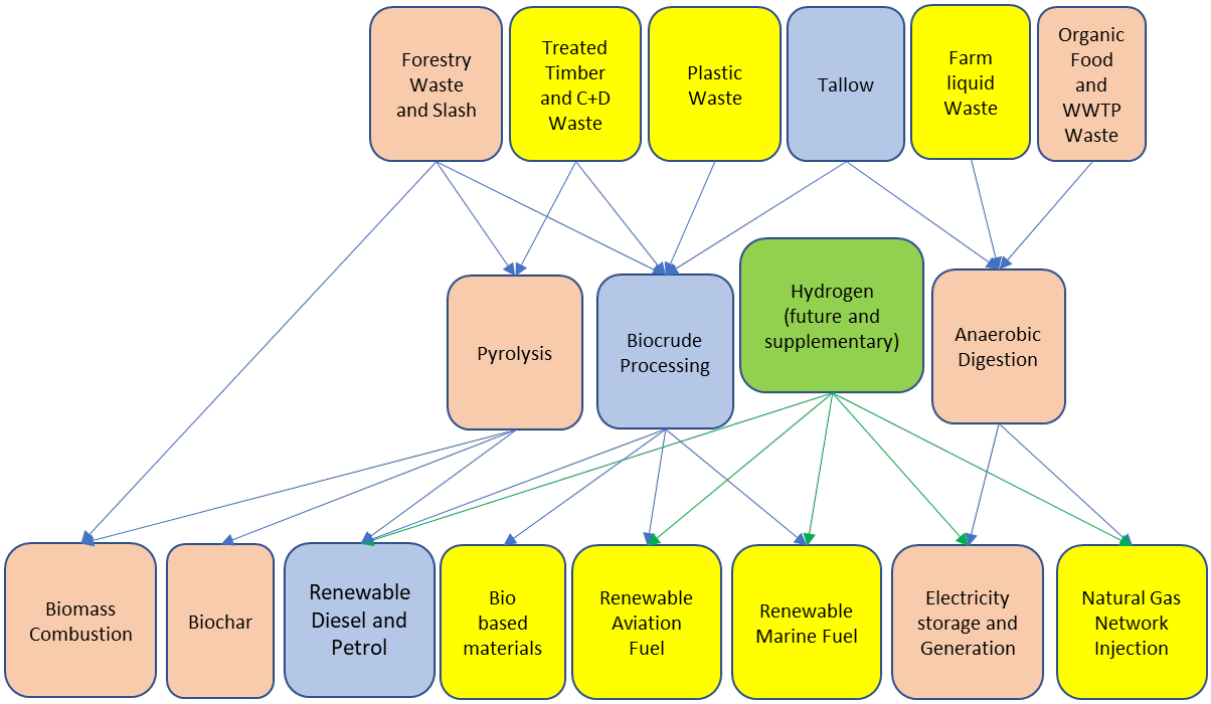

Figure 2: components of the New Zealand bioeconomy

We see the bioeconomy as being holistic, encompassing all facets of the economy. Figure 2 above outlines some of the key sectors and engagement points for interconnection between them. It is also important to recognise that parts of this bioeconomy are existing and are economic presently. Those orange waste streams (Forestry Waste and Slash, Organic Food and WWTP waste) are already used for renewable energy generation. The areas that are in blue (tallow, biocrude processing) represent the Z Biodiesel plant – which is operating though has significant room for growth. The items in yellow are those that have the most potential to accelerate decarbonisation, and to derive the most value from waste streams. This includes a number of energy sources, as well as alternative material creation paths represented collectively as bio-based materials.

Recommendation: Support the development of biomass supply chains

Biomass energy, or bioenergy, is the energy from plants and plant-derived materials. We **recommend** that a nationwide survey is undertaken to ascertain current availability of sustainable biomass energy supply - from woody and non-woody biomass through to waste oils and sustainable crop - and project the forward demand for biomass across individual regions. This will require engagement with industry to ensure it reflects their business and decarbonisation strategies.

In conjunction with this survey, we **recommend** that a nationwide sequestration model is developed. This will review current planting levels across the country to estimate current, and 10–20-year biomass availability and planned investment in infrastructure to support a sustainable biomass energy network; an ecological review; and a cost model, per hectare, for optimising planting to support land-owners choices and decision making for estimated biomass production and estimated carbon sequestration levels over the

next 50 years. This should include examination of potential impacts of expanding forest biomass harvesting on carbon sinks, biodiversity, water and air pollution.

The output from the demand survey and a sequestration model would have the potential to be used to develop a biomass roadmap. Many members have begun to investigate planting most beneficial to New Zealand's low carbon future (productive for biomass, sequestering native or exotic forest).

We estimate that this project will cost $3 million over a three-year period. This work could form part of the SAF feasibility study (see section 2.1 - transport), though would need to have wider application.

Recommendation: Undertake a programme to identify solutions to supply the North Island gas network with renewable gases as part of a wider bioeconomy

In the South Island, there is no easy centralised decarbonisation solution, relying on conversion towards electrification and biomass solutions for process heat. In the North Island, however, there is an existing gas network, and there is potential to convert the network instead of converting the end users.

There are a range of alternative gases that could be utilised in the existing North Island network, including hydrogen, biomethane and biogas, or pyrolysis gases. These gases could be blended within the existing network and the ratio increased over time as part of a coordinated, comprehensive transition plan. This could also be converted at a much lower capital cost to New Zealand—rather than procuring more than 100 new boilers and fuelling these boilers with new sources of wood or electricity, several significant green gas generation assets could be developed. Such an approach could have multiple benefits if it also assists with regional waste and reducing agricultural methane emissions.

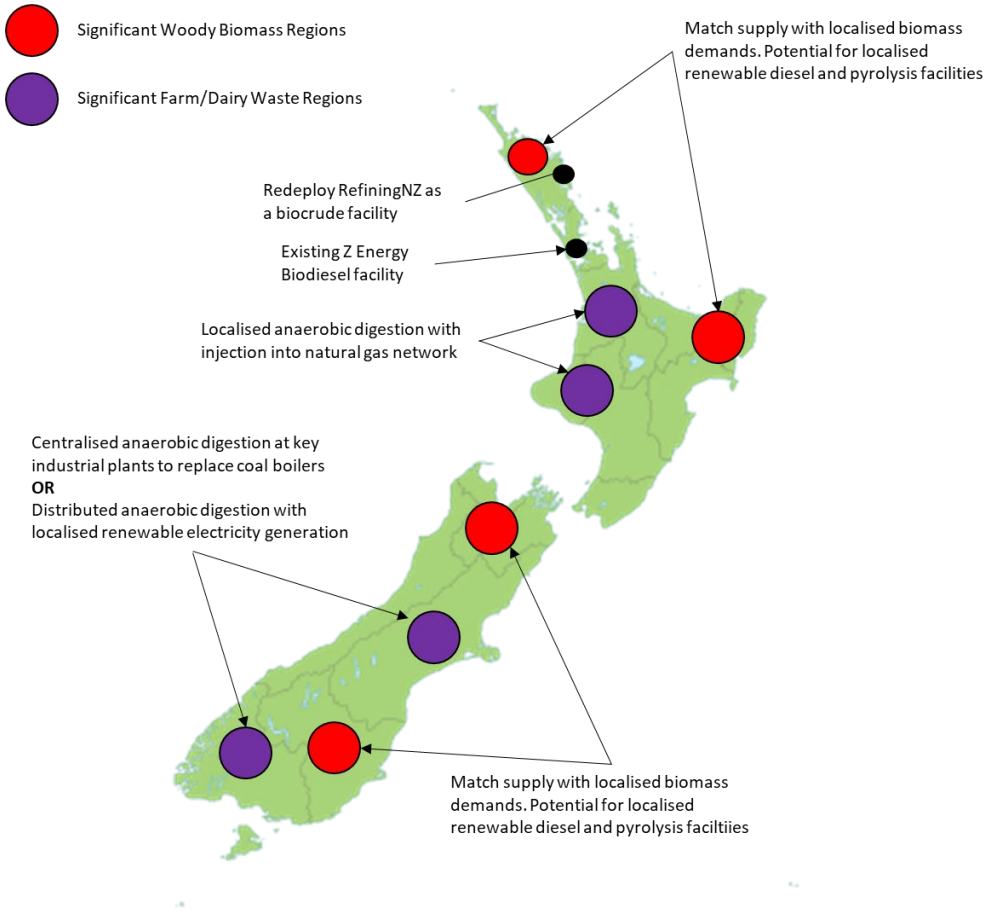

Figure 3

Industry has sought to identify the scale of the opportunity, including work undertaken by Firstgas, Fonterra, and Beca in their "Unlocking NZ's Renewable Natural Gas Potential" document. We recommend that pilot plants are now developed (at least 10) across industry, landfill, and agriculture sites. Following this we propose that pilot plants are developed to prove technology scalability.

We estimate that the development of these pilot plants project will cost $20 million and reduce carbon emissions by 20kT of emissions, equivalent to a 20-year carbon price of $50/T.

There are a range of potential biogas plants that could be developed and implemented right now – these are represented in Figure 3 above as purple dots. We recommend the following projects for consideration:

- Example biogas generation sites at dairy farms of significant (>750 cows per shed) scale – five sites within proximity of significant (industrial) natural gas consumers. This will likely be in the Waikato region.
- Example biogas generation sites at smaller dairy farms – five sites within close proximity of each other to allow coordination of waste streams – likely in the Waikato region.
- Financial support to industry (meat and dairy processing specifically) to develop their own biogas plants, and export green methane into the gas network. Members of the CLC are planning biogas plants presently but will require financial support to address the capital cost hurdle.

CASE STUDY: MEMBER BIOECONOMY PROJECTS

CLC and SBC are actively collaborating on use of biotechnology and biomass.

One example spanning the network includes EECA, Transpower, Orion and DETA working alongside electricity distribution businesses (EDBs) to develop a regional heat database, with the intent of linking demand for renewable fuels, with future fuel suppliers. This collaborative approach involves engaging with all process heat users across New Zealand with a heating plant of more than 0.5MW and aggregating their transition pathway across regions.

Other members have focussed on biomass as part of their process heat transition plans. As of October 2021, DB's Timaru brewery has steam requirements met from 100% biomass (wood) through their local steam supplier Pioneer. DB hope the switch will help them achieve a 32% reduction in their carbon footprint by the end of 2022. Sanford has also made the move away from a coal fuel source to the alternative of woodchip biomass at its Timaru fishmeal plant boiler, a move resulting in a 50% emissions reduction for the boiler.

Further North, Ports of Auckland are trialling the option of biofuels, having imported biodiesel from Neste, a Singaporean refinery, to trial in their straddle carriers which are a significant source of their emissions. Biodiesel is currently being imported by fellow CLC and SBC member Z Energy, who following their own trials and research, now have confidence the fuel option delivers as expected with a market to distribute it to.

These efforts highlight the need for a connected New Zealand bioeconomy.

About Sustainable Business Council

The Sustainable Business Council (SBC) is a CEO-led membership organisation with over 100 businesses from all sectors, ambitious for a sustainable Aotearoa. Members represent more than $87 billion of collective turnover, 28 per cent of GDP, and nearly 160,000 full-time jobs. Our network gives members the ability to take large-scale collective action. SBC is part of the BusinessNZ network and is the New Zealand Global Network partner to the World Business Council for Sustainable Development. www.sbc.org.nz/about/our-members/sbc-members

About Climate Leaders Coalition

The Climate Leaders Coalition (CLC) was launched in July 2018 with 60 original signatories to promote business leadership and collective action on climate change. With now over 100 signatories, they account for almost 60 per cent of New Zealand's gross emissions, around $86 billion of collective turnover, and employ almost 200,000 people. Signatory commitments include measuring and publicly reporting their greenhouse gas emissions, setting a public emissions reduction target, and working with suppliers to reduce their emissions. www.climateleaderscoalition.org.nz/who

Appendix: full list of recommendations

TRANSITIONING KEY SECTORS	
Transport	
Topic	Recommendation
Cars and light vehicles	
1. The target of reducing VKT by cars and light vehicles by 20% by 2035	We **recommend** Government clarify if this target is absolute or per capita.

2. National public transport network	• We **support** the development of a national public transport network to reduce travel by private vehicles and to increase walking, cycling, low-emissions public and shared transport.
	• We **recommend** Government articulate a clear, systems-level approach to a strategy for our future mobility.
	• Specifically, we **recommend** that the individual policies floated in the ERP discussion document be considered in a more holistic way.
	• We also **recommend** that the development of the network strategy be accelerated.
	• As part of the network strategy, we strongly **recommend** investigating the potential for public transport, walking and cycling in rural and provincial areas, and we would like to see more urgency placed on this action.
	• We **recommend** that central Government articulate high-level principles and design for the network, with detailed implementation and accountability to sit with local and regional councils.
	• We also **recommend** the scope of the network strategy consider:
	  ◦ An infrastructure plan, with clear timelines over which lower-carbon and affordable transport options are introduced to enable businesses to plan for the transition, especially where delivery times are important.
	  ◦ Mode-shift plans for inter-regional travel. Currently, the discussion document refers to the implementation of mode-shift plan in urban areas. We recommend that inter-regional mode-shift opportunities should also be considered in the first budget.
	• We **support** an integrated land-use, urban development and transport planning and investments to reduce transport emissions.
	• We strongly **support** an action on investing for a better understanding of travel accessibility, preferences and behaviour.

3. Transport pricing system	• We generally **support** improving how transport choices are priced. • We **recommend** Government provide clarity around the potential impacts of a congestion charge on transport modes that do not have alternative routes, e.g. the impact of the proposed Auckland congestion charge on heavy road transport. • We **recommend** that the design of a congestion charge acknowledges the de-carbonisation effort being undertaken by New Zealand's heavy freight industry and consider exemptions from such charging over transport corridors for which alternative routes are not feasible • We **recommend** that an explicit consideration be given to how the road infrastructure funding source can be future-proofed. • We **recommend** as few exemptions as possible for the system to operate efficiently and deliver the desired outcomes. • We **recommend** that Government integrate this work into the current project *Future of the Revenue System*.
4. Target and actions to increase the number of zero-emissions vehicles	We **recommend**: • Government conduct and publish analysis of how the zero emissions target could impact different parts of the society, especially when interacting with other policy instruments that affect transport choices (e.g. a congestion charge). • That the long-term focus of the target should remain reducing the emissions footprint of the fleet through a mix of policy interventions that avoid marginalising parts of the society.
5. Full utilisation of Clean Car Sector Leadership Group	We **recommend** accelerating and expanding the work of the Clean Car Sector Leadership Group to realise its full potential to develop practical solutions to overcome the key barriers to uptake of low-emissions vehicles in New Zealand. The group should focus its efforts on, and be resourced to develop practical solutions to, timing and structure of an ICE phase out; charging infrastructure (see below); and equity – access and affordability
6. Charging infrastructure	We **recommend:** • That scoping of a national EV infrastructure plan be accelerated with a view to commencing implementation by early 2023 at the latest. • The introduction of expanded support for co-investment for EV charging infrastructure to incentivise an accelerated rollout of infrastructure, as introduced through EECA's Low Emission Transport Fund. • That the ERP considers the value of smart EV charging and smart EV integration within the wider electricity system, and not restricted to heavy truck use only.
7. Role of business in accelerating fleet transformation	We **recommend:** • That Government includes a specific action to consider the possible short-term impacts on businesses as they transform their fleet to lower-carbon assets. • That investigation of tax incentives be accelerated with clear outcomes within the first budget. Removing current barriers will help smooth the pathway to electrification of corporate fleets

	• That WorkSafe guidelines requiring employer owned EVs to be charged in a garage be changed or modified to make it more practical and incentivise employer EV uptake, and that this work be undertaken as a matter of urgency. • That Government consider extending the Clean Car Discount threshold to cover light commercial vans, in order to reduce the total cost of ownership of these vehicles, and thereby support BEV uptake across the commercial fleet.
8. Vehicle scrappage scheme	We **recommend**: • Government consider if targeted cash incentives could be provided for scrappage, or for low-income households to trade older vehicles and purchase more fuel-efficient cars. • Government considers measures to reduce the amount of vehicles that may need to be scrapped, for example investigation of retrofit of ICE engines or viability of drop in synthetics and biofuels where technically and commercially viable technologies for converting engines of fossil fuel cars to EV engines and subsidise and scale them up.
9. Complementary measures	We **recommend** that Government considers complementary measures aimed at getting older vehicles off the road.
Targets and actions for freight transport	
10. The targets of reducing emissions from freight transport by 25% by 2035, and reducing emissions intensity of transport fuels by 15% by 2035	We **recommend** Government investigate whether a more ambitious target for freight transport than the ERP discussion document suggests could be adopted by implementing the measures recommended in the SBC Low Carbon Freight Pathway as set out in this section.
11. Supporting uptake of low-carbon fuels	We **recommend** for a more targeted approach in identifying and removing barriers to the uptake of low-carbon fuels than covered in the discussion document not just for trucks but also for other modes of transport.
	We **recommend** that Government: • Invests in gathering the evidence on the expected demand for biofuels and hydrogen through to 2050 from different sectors, and on the demand for electricity required to support the domestic production of green hydrogen. As mentioned previously, the electricity sector needs to be involved in designing and following through on the transport sector's transition. • Provides targeted support and an enabling regulatory framework to incentivise innovation and commercial production of: o Domestic biofuel, including sustainable aviation and shipping fuels. o Green hydrogen as an alternative to decarbonise aviation and heavy transport (to complement and build on existing work done in this area, including through Ara Ake.

12. Biofuels	We **support** the introduction of a biofuel mandate, and the consideration to support to domestic production of biofuels, however, due to limited feedstock supply, we **recommend** that the mandate should be first targeted to the parts of the transport sector that are hardest to de-carbonise, i.e. heavy freight and aviation. We **recommend:** • That the domestic production of biofuels is placed within a broader bioeconomy strategy for Aotearoa. The bioeconomy and biofuels strategies must be integrated, recognising other uses of biomass feedstock in the economy, and the trade-offs amongst supply-chain investment decisions that will need to be made. The issue of biofuel supply is particularly relevant for aviation, where alternative options to decarbonise are not available • We **recommend** that complementary analysis also be undertaken with regards to the end-to-end supply chain of biofuels, particularly if these are domestically produced.
13. Freight and Supply Chain Strategy	We **recommend** that the potential emissions reductions measures in MoT's *Hīkina* discussion document be explicitly considered in developing the Strategy. Including: • Optimising freight routes, logistic nodes, equipment and vehicles: SBC Freight Group is already planning on doing this through exploring collaborations aimed at optimising freight routes. • Examine opportunities for the collection and better use of data to improve efficiencies in the freight system. Subject to competition law considerations, SBC Freight Group could play a role the effective data gathering and use of data to improve efficiencies in the freight system. We would welcome the chance to discuss this matter further. • Consider encouraging/supporting voluntary business collaborations to reduce emissions in logistics – the Freight Group is already doing this and seeking to promote more cross-industry collaboration through expanding the **Pathway** membership. As well as the above, we recommend that the Strategy: • Explores consumer behaviour that promotes modal shift, this being one of the Freight Group's implementation channels. We look forward to engaging on this in more detail through the Freight and Supply Chain Strategy. • Specifically mention the roles of biodiesel, sustainable aviation fuel, green hydrogen, and BEVs in the freight sector transition. • Be underpinned by evidence on the demand for mode shift to rail or coastal shipping, and the capacity available to meet that demand. • Clearly articulate the vision on how different transport modes can integrate across different routes, identifying barriers and highlighting opportunities.
14. Aviation	We **recommend** investigation of a specific biofuel mandate for SAF and Government support for domestic production as two of many possible policies that could be used to close the gap between SAF and fossil fuels.

	We **recommend** the SAF mandate to start at 2.5% in 2025, rising to 13.5% and 50% in 2035 and 2050 respectively. We generally **support** the introduction of a biofuels mandate applying to SAF. However, the current proposal for a biofuels mandate for Aotearoa would not facilitate SAF supply in Aotearoa. A SAF-specific mandate applying to <u>all</u> fuels (including fuel uplifted for use on international flights) is required.
	We **recommend** the following to facilitate aviation decarbonisation: • Identify and prepare for the infrastructure and energy requirements of zero emissions aircraft. To operate these planes in the third budget period as we plan, research and investment in this infrastructure needs to start now. • Review the objectives of the air traffic management system to, after safety, optimise for carbon reduction.
	We **recommend** exploring the scope for operational improvements at airports: developing fuel-saving flight paths (in conjunction with Airways New Zealand) and the allocation of taxiways to minimise aircraft taxi time.
15. Rail and marine	We **recommend** that the ERP includes a specific action for identifying barriers to mode-shift, which would then inform the National Freight and Supply Chain Strategy.
	We **recommend:** • That the National Freight and Supply Chain Strategy clearly articulates the investments required in rail and coastal shipping to deliver the desired mode-shift outcomes. • That realistic mode-shift targets be considered. • That the ERP also actions the Commission's advice to introduce a target/mandate for renewable fuels for ships with policy level guidance and recommendations to support the domestic production, distribution and supply for those alternative fuels. • Closer examination of the role of shipping, including international shipping, in reducing New Zealand's transport emissions, as part of the ERP.
16. Complementary measures	We **recommend:** • That the opportunity for domestic refurbishment of high-emitting trucks is explicitly considered in the ERP. • Government reviews restrictions/requirements (e.g., length restrictions) on the type of heavy vehicles that can be bought into New Zealand.
17. Time limit on ICE light vehicles	We **recommend** the time limit on new ICE light vehicles is structured taking into account the range of factors that will contribute to EV uptake in Aotearoa (including supply, charging infrastructure, and incentives), as well as policies restricting ICE import or manufacture in New Zealand's major trading partners

Energy and industry	
Topic	Recommendation
18. Process heat	We **recommend** developing complementary measures to the Government Investment in Decarbonising Industry (GIDI) fund that support a wider range of companies to decarbonise: • Develop complementary measures to the Government Investment in Decarbonising Industry (GIDI) fund that support a wider range of companies to decarbonise: a bespoke solution for process heat conversions amongst the largest users and a smaller fund for SME process heat users. • Establish a mechanism for Government to underwrite long-term fuel costs to de-risk and incentivise investment in electrification. • Prohibit the development of new fossil fuel consuming process heat plants. Specifically we **recommend** Government: • Provide clarity on future rounds of GIDI (for example, it is not currently clear whether there is funding after GIDI round three). • Directly engage with large users (e.g. top 20 in New Zealand) with a view to targeting GIDI at their transitions. The key reason for this is that the large users represent more than 40 per cent of the available capacity. Converting these users to bioenergy is not necessarily the best use of biomass fuel and will likely require a customised solution to help decarbonise. They may also make the most tangible carbon reductions across New Zealand. • Establish a second fund to assist smaller users with a less stringent criteria around engagement. • Establish a mechanism to underwrite long-term fuel costs to de-risk and incentivise investment in electrification. This could be in the form of specific bridging support in the event of electricity price spikes for decarbonised businesses for a period of 10 years, to cover for periods of high energy cost and give confidence in the long-term performance of the energy market We **recommend** Government prohibit the development of new fossil fuel consuming process heat plants. Specifically: • Prohibit the installation of any new coal boilers for stationary process heating energy. • Develop a transition plan in conjunction with Government and Industry to phase out the operation of all process heat fossil fuel boilers operating in New Zealand by 2050. We **recommend** Government is clearer and stronger in its messaging that this is a significant area for quick, lasting, decarbonisation, and this should be a key area for current Government investment.

19. Renewable energy consumption target	We **recommend** that Government adopt a 50 per cent renewable energy consumption target by 2035 (as recommended by the CCC). We also **support** an aspirational target for renewable electricity and agree with the CCC's position which is that the last few percentage points are too expensive to pursue and that government and business would reduce emissions faster (and more affordably) if Government prioritise other, more carbon-intensive emitters (transport, process heat), over investment in 100 per cent electricity generation. We **agree** with the CCC that the overall path to net zero carbon should deploy the least cost abatement options first.
20. An energy strategy for the whole energy system	We **support** the CCC's recommendation to develop a long-term national energy strategy that provides clear objectives and a predictable pathway away from fossil fuels and towards low-emissions fuels, and the infrastructure to support delivery. We **agree** that this strategy is central to New Zealand's low carbon future. We **recommend** framing of the strategy for the energy system in the ERP provides greater specificity about what needs to be included within the energy strategy to help Government to act quickly and decisively. This should include: • A terms of reference of the strategy is developed and included in the final ERP. • Government engage with future customers of large quantities of bioenergy and green hydrogen (industrial sector (particularly process heat) and the transport sector (particularly aviation) to ensure future demand scenarios are appropriate. • Clarity is provided on who 'owns' the energy strategy and the electricity-specific strategy, and by when the strategy will be drafted. • This strategy is owned by the Minister of Energy and Resources and that there is a commitment made to have this ready for public consultation in 2022 We **recommend** that the following also forms part of the long-term energy strategy: • Amendments to existing policy architecture to allow an accelerated transition, including ensuring the Commerce Commission's price pathway methodology does not hold up urgent additional investment for electrification of innovation in deployment of distributed energy resources (DER) for system management. • The interplay of varying fuel types (electricity, biomass, natural gas, biogas, hydrogen) through the transition. • Assessing the role of demand side management especially in electricity and incorporating the place of energy efficiency and new technology to better manage both supply-side and demand-side energy consumption. Ensure regulation is not a barrier. • Clarifying the place of New Zealand's Energy Certificate System, and the effect of its carbon footprint on the wider electricity sector.

	• Investigation of whether policy measures could incentivise the uptake of solar photovoltaic panels in New Zealand. Accommodating a distributed generation model within the existing system will support management of supply and demand, increase resilience and ease the burden on energy sector capital investment. • Building on work already being done in this area, most notably The Aotearoa Circle's Energy Strategy. • Considered through an equitable transition lens, including measures to address the 'energy trilemma' of affordability, security and sustainability. We point to the Business Energy council's New Zealand Energy Scenarios – TIMES-NZ 2.0 as useful a tool to aid decision-making on future energy supply and the range of associated trade-offs.
21. Removing regulatory barriers	We **recommend** Government assure itself that regulators are taking every step it can to remove any barriers to investments that would facilitate emissions reductions. Specifically: • The Electricity Authority follows through on this strategic intent and implement the recommendations of the Innovation and Participation Advisory Group under the Equal Access work stream. • The Commerce Commission actively reflect government policy and intent on greenhouse gas emissions while upholding its statutory remit. Steps would include prioritising work and making decisions that reflect the contribution the electricity system must inevitably make to the decarbonisation agenda.
22. Adaptation of electricity regulation	We **recommend**: • Electricity regulation (Part 4 of the Commerce Act) be adapted for a low-emissions future. • A broader view of the impacts of the institutional arrangements on the sector/energy system is given. • Further clarity is provided on whether elements of all the existing institutional arrangements for energy are set up to encourage (and not impede) developments around the energy needs of zero emissions aircrafts (electric, hybrid, and hydrogen aircraft).
23. The role of green hydrogen	We **recommend** Government recognise that the two most promising alternatives to fossil fuel energy and electricity for hard to abate sectors are biofuels/biogas and green hydrogen. With respect to green hydrogen, we **recommend**: • Greater emphasis on the potential role of green hydrogen as a low-carbon fuel in the ERP, in particular incentivisation of measures to encourage research and innovation to explore green hydrogen's potential given the scope above. • Green hydrogen is a key part of the technology roadmap for zero emissions aircrafts and has potential as an alternative to biomass as a feedstock when creating synthetic sustainable aviation fuels ("power to liquid" fuels) so its potential be more fully explored.

Building and construction	
Topic	Recommendation
24. Built environment	We **recommend:** • The Warmer Kiwi Homes programme is expanded to cover an additional 200,000 homes and additional energy users (such as LED lighting). • That Government subsidises the uptake of electrical heating systems in homes through heat pump support, specifically to eliminate gas as a residential heating source. • That Government creates an Energy Performance Certificate (EPC) policy. We **recommend** that Government makes specific recommendations to address embodied emissions. We **recommend**: • Embodied emissions are included in the following three areas: o where buildings demand lower carbon concrete, steel, aluminium and aggregate, it will help change the manufacture and sourcing of products and reduce industrial heat emissions. o where manufacturing building materials are saying that they need demand, in order to invest. o within the Carbon Neutral Government Program for all new projects (those commencing design after January 2023). • Setting 'baseline' carbon caps for new developments on a m² basis is adopted by 2024 – new buildings that are underway today will be here well beyond 2050, so we cannot wait to implement this change. • Government considers the ability to change the carbon conversation from a production perspective to a consumption one. • Government considers incentivising the use of local materials to reduce transport-related emissions. We **recommend**: • NABERSNZ ratings are mandated for all existing office buildings, hospitals, hotels, and retail buildings by June 2023. • Government undertake analysis on the total cost of NABERSNZ implementation, offers a $2,500 incentive on the initial assessment for the first 500 buildings to speed up the uptake of NABERSNZ ratings, and consider a joint funding approach with the private sector to support the ongoing implementation of the scheme • Government amends their energy efficiency for new builds target to 30 per cent more energy efficient by 2024, 60 per cent more energy efficient by 2027, and near zero energy by 2030. We **recommend** that Government reflects following four initiatives in the ERP to proactively future proof new builds: • Link the design of buildings with transport mode shift, including the expected uptake of EVS. Charging, parking, electricity fitouts should factor in the behaviour and needs of future EV owners.

	• As above, buildings should be designed with future home energy management systems (HEMS) in mind. This is the idea that in future network businesses and energy retailers would be able to offer optimisation of roof top solar, batteries, remote management of appliances for either domestic economic optimisation or grid/energy support. • Design out dependence on fossil fuel space and water heating now. • Factor in the co-benefits of warm dry homes with emissions reductions into minimum building standards We **recommend** that energy efficiency is the first priority in all of these initiatives. For example • Government is clearer in its recommendations regarding energy efficiency. • Government includes a range of initiatives as part of a comprehensive energy equity programme. The following are tried and tested in New Zealand and/or overseas and can be implemented relatively quickly: o The Warmer Kiwi Homes programme should be applied on a wider scale, noting health co-benefits. o Introduce energy labels for homes. o Introduce energy labels for commercial office buildings
Agriculture	
Topic	Recommendation
25. Research and development into the rumen with the preeminent goal of reducing biological methane emissions in agriculture	We **recommend** that Government **create** an accelerated pathway for the development and adoption of biogenetic methane emissions reduction technologies. This should involve scaling up public and private funding and lifting the urgency of public and private sector co-operation to invest in a strategic, structured, and long-term commercial orientated approach to reducing biogenic methane emissions. Specifically: • Government double funding from $25m/year to $50m/year from 2022 and increase total funding further to more than $100m/year from both government and business by 2025. • The delivery and governance arrangement should be focused on the ultimate delivery of products that reduce methane emissions with the benefits of the resulting coming back to the NZ primary sector. • The domestic public and private R&D spend would be in addition to revenue derived from a government pricing mechanism (once this is introduced), and until new technologies are brought into the market. We **recommend** Government pursue a much more ambitious biogenic methane emissions reductions pathway than 24 per cent by 2050 by significantly accelerating our research into methane mitigation technologies around an international commercialisation model. We **recommend** that Government work with the Primary Industry to consider how research and development should be advanced to reduce nitrous oxide emissions.
26. Recycling agricultural emissions pricing revenue into R&D	We **recommend** that any revenue produced from a pricing mechanism for agricultural emissions under HWEN should be hypothecated into research and development focused on reducing agricultural emissions.

27. A long-term agricultural aspiration	We **recommend** that Government in partnership with Primary Industry develop a long-term aspiration strategy for New Zealand agriculture.
28. Encouraging uptake of on-farm mitigation practices ahead of implementing a pricing mechanism for agricultural emissions	We **recommend** on-farm mitigation practices are clarified and defined.
29. Reducing barriers to changing land use to lower emissions farming systems and products	We **recommend** that a coherent forestry strategy is established that addresses the ongoing need to offset carbon emissions, and balances between exotics and natives and the need for the development of an accompanying bioeconomy.
Waste	
Topic	**Recommendation**
30. Waste reduction target	We **recommend** adopting a target to reduce waste biogenic methane emissions by 40 per cent by 2035.
31. Education and behaviour change	We **support** more funding for education and behaviour change initiatives to help households, communities and businesses reduce their organic waste.
32. Extension to uncontrolled activities	We **agree** the proposals outlined in the discussion document should also extend to uncontrolled activities, such as, farm dumps, open burning and unmanaged disposal sites given the long history of reductions from managed disposal sites.
33. Intersection between waste and the bioeconomy	We **recommend** that Government investigates how the waste sector fits into the bioeconomy and what should be occurring with what waste, where, in order to provide the least cost solution for New Zealand overall. Items to consider include: • Sources of different types of waste. • Whether there are thermal/electrical loads around high waste areas. • Whether should compost be prioritised over other organic disposal methods. • Whether should anaerobic digestion be prioritised over other organic disposal methods. • Whether AD/pyrolysis be utilised to provide inputs into energy systems, including: - Local energy hubs for large industries. - Liquid fuel consumption market, including petrol, diesel and LPG.

F-gases	
Topic	Recommendation
34. Phase down of the bulk import of HFCs required under the Kigali Amendment and restricting the import or sale of finished products that contain high-global warming potential HFCs, where alternatives are available	We **support** the CCC's recommendation that emissions from fluorinated gases must be reduced and **recommend** that: • Government provides financial assistance for the purchase of equipment required to service and maintain HC equipment safely given it is a flammable gas during the phase down the bulk import of HFCs. • Government provides subsidies and rebates like they do for cars and heat pumps.
35. Restricting the import or sale of finished products that contain high global warming potential HFCs	We generally **support** restricting the import or sale of finished products that contain high-global warming potential HFCs to the extent that there are alternatives available that can be safely serviced and maintained. We **support** utilising lower global warming potential refrigerants in servicing existing equipment providing the practice is compliant.
36. Phasing of GWP limits and new technology	We **recommend** that Government work with the private sector to revise the proposed timelines and GWP limits on certain application categories to reflect the varying size and scale of our members' operations. During the phasing in of the new technology described we **recommend** that the Government consider the following ways to support the acceleration of refrigerant emissions reductions: • listing refrigerant technicians as a skills shortage to grow and relieve a pressured and small group of technicians currently servicing the industry; • subsidisation or rebate schemes for replacement of legacy systems with equivalent lower GWP systems; • improved leak tightness; • reduce the amount of refrigerants used in equipment; and • putting in preventative maintenance programmes.
37. Other ways of reducing refrigerant emissions	We also **recommend** that Government consider natural refrigerants, which are available already (R774 and R290) and commonly used, as alternatives to HFC refrigerants that New Zealand could utilise (noting that additional training and risk management may be required, particularly for R290 given it is a flammable refrigerant).

	We **recommend** that Government provide funding for facilities that are looking to upgrade their facilities to lower GWP gases. EECA is providing significant funding and support for industrial processes to transition away from fossil fuel use through the GIDI Competitive Fund. This fund could be extended to include upgrades for F-gases.
Forestry	
Topic	Recommendation
38. Forestry	We **recommend**: • The inclusion in the ERP a specific action to investigate what policy actions would encourage native plantings and balance the agricultural sectors on going requirement for land with the case for forestation. • Government investigate what policy actions would encourage native plantings whilst recognising the role that exotic forestry will play in our transition.
MEETING THE NET ZERO CHALLENGE	
Transition pathway	
Topic	Recommendation
39. Business-government collaboration	We **recommend** Government establish: • A Climate Advisory Group to advise the Climate Change Response Ministers Group comprising business and other leaders from across the economy as the current ERP is developed and implemented. • A regular forum between Chief Executives from the public and private sectors on finalisation and implementation of the ERP. For example, SBC would be very happy to facilitate regular discussions between the public sector's Climate Change CE Board and Chief Executives from across our membership. • Sector-specific collaborations between government and business to respond to individual decarbonisation challenges. There are some areas where there are natural forums or formats for these collaborations, and others where innovative approaches might need to be explored.
40. New principle – close collaboration between business and government to develop and implement the ERP	We **recommend**, as the CCC recommended, the addition of a principle relating to working in partnership with business. We **recommend** that Government partner with business to allow for the co-development of solutions.
41. A path that is clear, ambitious and affordable	We **recommend** the principle (that our transition path should be clear, ambitious and affordable) be augmented with the addition of the need for a pathway that is also credible.

42. The role of nature-based solutions	We **support** investigation of mitigation co-benefits through nature-based solutions including, for example, blue carbon, and recommend more clarity be provided on enabling measures and mechanisms that will be put in place.
Working with our Te Tiriti partners	
Topic	**Recommendation**
43. Working with our Te Tiriti partners	We **support** a genuine, active, and enduring partnership with iwi/Māori, including iwi/Māori business, as reflected in our submission to the CCC. We also **support** Government working in partnership with Iwi/Māori and local government to ensure that the principles of Te Tiriti o Waitangi are embedded in this (and subsequent) emissions reduction plan(s).
Making an equitable transition	
Topic	**Recommendation**
44. Making an equitable transition	We **recommend** Government • Develop a Terms of Reference to underpin an Equitable Transitions Strategy as part of the final ERP. This should include the key features of the Strategy, as well as process and timeline for its development. • Work in partnership with business and other social partners to develop an Equitable Transitions Strategy that includes a concrete articulation of the future that New Zealand is working toward and the policies that will support us to get there.
45. Terms of Reference for an Equitable Transitions Strategy	We **recommend** the final ERP contain a Terms of Reference for the Equitable Transitions Strategy. The Terms of Reference should: 2. Commission economic and social analysis to inform the development of the Strategy and ensure New Zealanders understand which sectors will be most impacted by the transition. 3. Articulate how the Strategy will be developed in partnership with Iwi/Māori. 4. Describe at a high level the process for development of the Strategy. 5. Provide for the following critical components of the Strategy: o Adapting the education system to equip New Zealanders with the skills needed for a low emissions future. o Supporting workforce transition, including redeploying and upskilling workers from high-emissions sectors to low-emissions sectors. o Factoring distributional impacts into climate strategies and policies. o Mobilising finance and funding for initiatives that support an equitable transition by redirecting a portion of hypothecated ETS revenue into a contestable fund.

46. Economic analysis to inform the development of the Equitable Transitions Strategy	We **recommend** that Government commission analysis that explores the likely future state of the economy based on the transition pathway, to form a clear articulation of the future state that policy needs to respond to reflect the fact that the transformation of the economy from where it is today to a decarbonised one will take the form of a major structural change.
47. Accelerate the timeframe for the Strategy's development	We **recommend** that: • The timeframe for developing an Equitable Transitions Strategy be brought forward to the end of 2023. • The development and publication of the Equitable Transitions Strategy be fast-tracked, and that the Strategy remains a living plan that evolves and is updated at regular intervals.
48. Actions to be taken now	We **recommend** Government • Take certain concrete actions now to support impacted firms, employees, and communities and support their transition pending development of the Strategy. • Take immediate steps to: o Consider all climate policy decisions through a just or equitable transition lens. This could be done by expanding the Climate Impacts of Policy Assessment to include consideration of the impacts of the policy on equity in the transition to a zero-carbon economy. o Develop a method of monitoring and review of impacts of policy on the equitable transition. This could build on existing frameworks applied to measure wellbeing such as the Living Standards Framework and He Ara Waiora. o Partner with business groups, including SBC and CLC, to develop business-to-business solutions to help ensure equity in the transition across the supply chain, e.g. through scalable prototype projects to: – build capability within companies across the supply chain to transition toward lower emissions business models and manage workforce and other transition implications; and – develop proactive skills and employment pathways to keep displaced workers connected to decent, meaningful work.
ALIGNING SYSTEMS AND TOOLS	
Government accountability and coordination	
Topic	Recommendation
49. Government accountability and coordination	We **recommend** Government: • Establish a central unit within the Department of Prime Minister and Cabinet to oversee the interdepartmental climate change response. • Move swiftly to establish a structure empowered to allocate resources and take decisions necessary on climate policy with the urgency this challenge demands.

	• Establish Vote Climate Change as a specific multi-agency appropriation, which consolidates existing and future government funding for climate change mitigation and adaptation activities. • Consider broadening the Commission's recommendation regarding expansion of the *Climate Implications of Policy Assessment* tool to consider climate change in the development of all new policies, regulations, and fiscal proposals.
Funding and financing	
Topic	Recommendation
50. Funding and financing	We **recommend** Government support measures and mechanisms that overcome the challenges of financing projects that contribute to emissions reductions but for which monetising the emissions benefits is not possible. These projects may be technically challenging or projects that simply require more effort than the low hanging fruit projects banks and other finance companies are more likely to assist. We **recommend** Government develop a programme of results-based procurement or financing. We also **support** the work of Toitū Tahua: Centre for Sustainable Finance in this area. In particular, we encourage Government to support implementation of the Sustainable Finance Forum's 2030 Roadmap, including through a whole of government Sustainable Finance Strategy, as well as the recommendations in Toitū Tahua's response on the ERP discussion document.
Emissions pricing	
Topic	Recommendation
51. Emissions price paths to inform investment decisions	We **recommend** Government provide certainty on the projected price corridor for NZUs under the ETS by working with business to develop a shadow carbon price to inform investment decisions.
52. Emissions pricing	We **recommend** Government provide clarity on the likely future price corridor for NZUs under the NZ ETS and the major assumptions underpinning that work.
53. Forestry should not delay gross emissions reductions	We **support** the Commission's recommendation to transition from a reliance on exotic forests to permanent native forests by 2050. We **recommend** that the ERP includes a specific action to investigate what policy measures would incentivise native plantings.
54. Role of voluntary carbon markets	We **support** efforts to develop a high integrity voluntary carbon market for New Zealand to keep us aligned to international best practice and enable private sector entities to take credible and quantifiable climate action.

Planning	
Topic	Recommendation
55. Planning	We **recommend** Government consider the CCC's advice on planning through the RMA reform process.
Research, science and innovation	
Topic	Recommendation
56. Research, science and innovation	We **recommend** ETS proceeds are partially hypothecated into research and innovation targeted specifically at emissions reductions and achieving an equitable transition Potential uses include: • Supporting development of the complementary measures to the Energy Efficiency and Conservation Authority's (EECA) Government Investment in Decarbonising Industry (GIDI) Fund mentioned in section 2.2.1 – process heat. • Introducing results-based procurement of financing to drive down emissions as mentioned in section 4.2 – funding and finance, alongside investment crowded in from the private sector, or to expand application of the Green Investment Fund. • Establishing a national centre of excellence to drive innovation toward low emissions outcomes in New Zealand, administered by central Government and modelled on successful public-climate innovation partnerships internationally, such as the Climate-KIC model used in Europe and Australia.
Behaviour change	
Topic	Recommendation
57. Behaviour change – empowering action	We **recommend** Government deploy a marketing strategy similar to that developed for the COVID-19 response to drive behaviour change, building awareness and buy-in to the value of an equitable transition to a zero carbon, climate resilient society. We **recommend** the public sector unit we propose in our section on Government accountability and coordination (questions 21-23) oversee the development and deployment of this strategy.
58. Tools to assist with behaviour change	We **recommend** the introduction of additional policy tools to support supply-chain emissions management (behaviour change), such as: • Support the development of methodological standards and create incentives for the calculation, exchange and display of environmental data, ensuring all types of stakeholder are considered • Set guidelines for the production of environmentally responsible products (designed to last, reusable, minimal emissions associated with production). • Provide investment in the research to achieve a successful digitalisation for a green economy.

Circular economy and bioeconomy	
Topic	Recommendation
59. Circular economy	We **recommend**: • Policy measures to move New Zealand to a circular economy. We point to the submissions made by our partner organisations Circularity and the Sustainable Business Network on this issue. • Government investigate how models like XLabs could be replicated or scaled to enable a wider range of businesses to benefit from programmes designed to build awareness how the circular economy can be practically applied.
60. Bioeconomy	We strongly **support** the CCC's recommendation to develop and deliver a strategy for a thriving, climate-resilient bioeconomy that reduces emissions through displacing fossil fuel-derived production materials and energy sources. We are pleased to see this reflected in the discussion document. We **recommend** much more comprehensive and accelerated work to map out and put in place enabling regulation for the New Zealand bioeconomy.
61. Support the development of biomass supply chains	We **recommend** that a nationwide survey is undertaken to ascertain current availability of sustainable biomass energy supply - from woody and non-woody biomass through to waste oils and sustainable crop - and project the forward demand for biomass across individual regions. We **recommend** that a nationwide sequestration model is developed.
62. Undertake a programme to identify solutions to supply the North Island gas network with renewable gases as part of a wider bioeconomy	We **recommend** that pilot biomass plants are now developed (at least 10) across industry, landfill, and agriculture sites. We **recommend** the following projects for consideration: • Example biogas generation sites at dairy farms of significant (>750 cows per shed) scale – five sites within proximity of significant (industrial) natural gas consumers. This will likely be in the Waikato region. • Example biogas generation sites at smaller dairy farms – five sites within close proximity of each other to allow coordination of waste streams – likely in the Waikato region. • Financial support to industry (meat and dairy processing specifically) to develop their own biogas plants, and export green methane into the gas network. Members of the CLC are planning biogas plants presently but will require financial support to address the capital cost hurdle.

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CLIMATE LEADERS COALITION

ON A MISSION TO REDUCE EMISSIONS IN NEW ZEALAND