Submission by

to the

Ministry for the Environment

on the

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

24 November 2021

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TE HAU MĀROHI KI ANAMATA BILL SUBMISSION
BY BUSINESSNZ AND BUSINESSNZ ENERGY COUNCIL[1]

INTRODUCTION

1. BusinessNZ and the BusinessNZ Energy Council (BEC) welcome the opportunity to provide feedback to the Ministry for the Environment (referred to as 'the Ministry') on its emission reduction plan discussion document: *'Te hau mārohi ki anamata – Transitioning to a low-emissions and climate-resilient future'* (referred to as 'discussion document').

2. Finishing COP26, it is great to see that now over 90% of the world's GDP have set net zero emission commitments and 154 countries put forward new climate action plans to cut emissions or "NDCs".

3. However, the time for setting targets has passed, details are on how to deliver those are now needed to support New Zealand's journey to a net zero emissions future. Efforts to combat climate change will have to involve a fine balance between domestic emission reductions and international actions to help developing countries to reduce their emissions.

4. Business has a significant role to play in achieving these ambitions and many of our members are already working on solutions to reduce New Zealand's emissions footprint. With increased support and direction, enabling businesses to make long-term investment decisions, this potential can be achieved. Long-term global carbon emission reduction require a true partnership between government and all society actors who, in order to achieve the targets set, will need to commit capital, take risks and change how they behave.

5. Government should recognise the growing appeal of voluntary emissions reduction by business due to consumer demand. This is a powerful force for change. Any actions the government can take to increase business' ability to respond to this demand will increase their ability to reduce emissions.

6. We welcome the clear recognition of the need for the Government to partner New Zealanders to reach emissions targets. However, we are concerned that the current discussion document is very high level and vague.

7. More clarity is needed on how proposed measures will impact emission reductions. It would be useful to understand the expected make-up of emissions within the budget, and the expected reduction by industry/source. This information will help New Zealanders to consider their ability to meet those specific reductions, or to consider additional reductions that might be possible. We note that this information is present for the transport sector, but less comprehensive for other sectors.

[1] Background information on BusinessNZ and BusinessNZ Energy Council (BEC) is attached as Appendix One.

8. There have been numerous public statements from Minister James Shaw for this to be a 'co-designed' process, for example the Minister referred to it in his briefing on the Climate Change Commission's final advice on 9 June 2021. The Ministry also refers to 'co-design' throughout its discussion document. Yet this present high-level discussion document seems the only opportunity for engagement before the final release of the Emission Reduction Plans in May 2022. We strongly recommend another round of consultation engaging in specific policy proposals connecting those to emission reduction potentials.

9. Achieving proposed targets requires the cooperation of every part of the economy including, not least, our education system. It will take time for the New Zealand education system to respond to the changing nature of industry. The nature of 'green jobs' and the necessary skill shift is time critical and must be brought more into focus.

10. We are concerned at the lack of detail about the future workforce and the impact on businesses. We would like to see more economic modelling before the Government finalises its Emission Reduction Plan.

11. This submission reiterates key points made in our response to the Climate Change Commission's advice, some of which have been strengthened or further refined as a result of extended direct engagement with members as well as of a workshop held in conjunction with MBIE and SBC.

MANAGING INCREASING COMPLEXETY

New Zealand Energy Scenarios – TIMES-NZ 2.0

12. The prospect of increasing complexity suggests caution is needed in designing policy frameworks. Greater transparency and more data are required. For some time now, we have collaborated with businesses, academia, and government on a continuous basis to further develop and improve the New Zealand Energy Scenarios – TIMES-NZ 2.0.

13. The purpose of this ongoing project is to provide the public and private sectors with an exploratory analysis to get a better idea of how our future energy supply and use (including transport fuels and technologies) might look, and the range of trade-offs and choices we might need to make along the way. While most modelling defines a destination, indicating what needs to change to get there, our scenarios explore the 'what-if' scenarios rather than the 'what-musts'.

14. The project has generated a set of modelling results for two distinctly different stories about the future based around a combination of factors, of which are highly uncertain (for example, the price of carbon) and particularly, how New Zealand responds to climate change relative to the rest of the world. This capability is critical to the development of resilient, durable long-term policy and investment decisions. The two stories are:

    - Kea – New Zealand is moving faster than the rest of the world when acting on climate change. Government acts to encourage a faster transition to non-fossil fuelled energy sources in passenger and freight transport.

- Tūī – New Zealand is moving slower than the rest of the world in acting on climate change. There are incremental technology advances and cost reductions for alternatively fuelled transport options.

15. Whether we lead or lag the rest of the world in climate change ambition has implications for the modelled economic and emissions outcomes – as shown in charts 1 and 2 below.

Chart 1: Carbon Price (NZD/tCO2) – Kea and Tūī

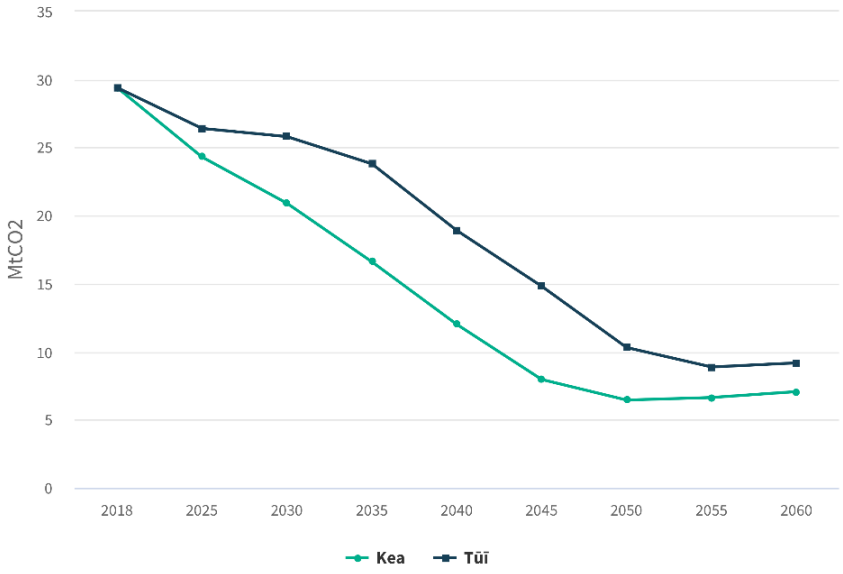
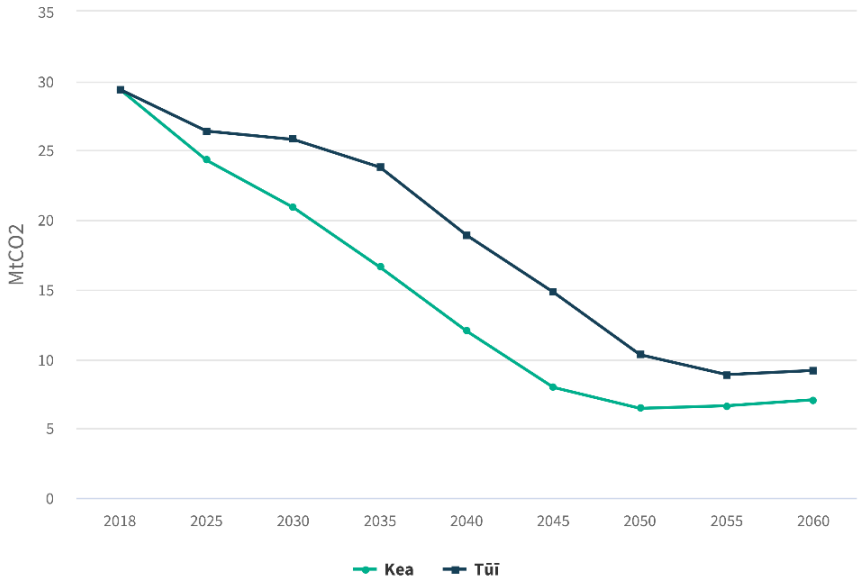


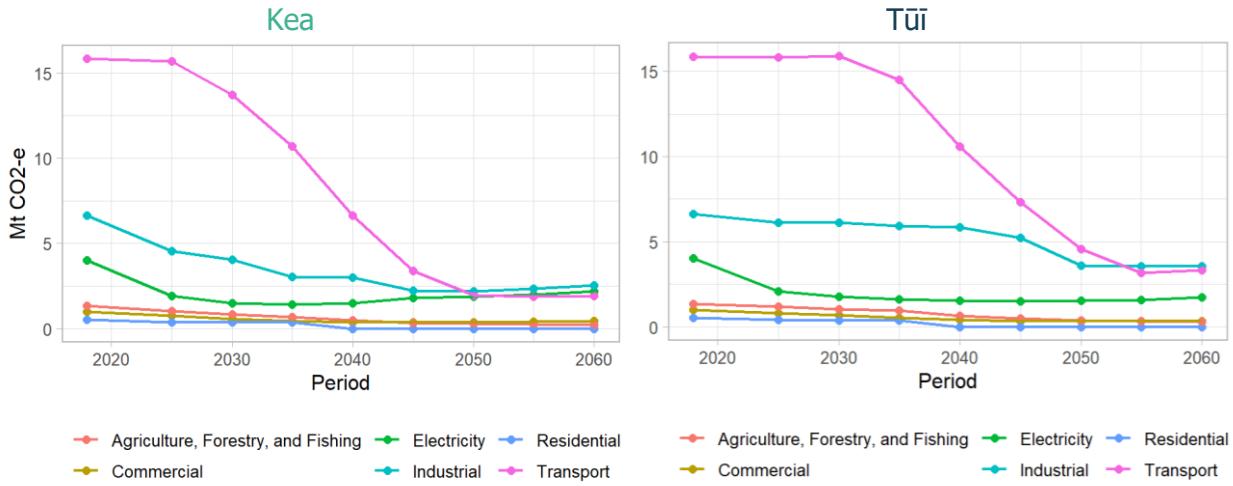
Chart 2: All Energy Related Annual Carbon Emissions – Kea and Tūī



16. Kea and Tūī allow us to think critically about their differences, the drivers, policy, and investment levers required to achieve them, and the trade-offs, explicit or implied between them and their acceptability.

17. Both scenarios show strong reductions in energy emissions. In Tūī, energy emissions decline to 10 Mt CO2-e/year in 2050 while in Kea they fall further to 6.5 Mt CO2-e/year. Moreover, Kea's more rapid emissions decrease means that the model output indicates cumulative emissions through to 2050 as almost 25% lower in the Kea scenario than in the Tūī scenario.

Chart 3: Emission reduction per sector Mt CO2-e Kea and Tūī



18. Kea and Tūī both show great emission reduction opportunities could come from the transport and industrial sector – see chart 3 above.

Coordinate existing developments

19. A great deal of coordination will be required as we develop the Emission Reduction Plan (ERP). This development needs to coordinate all relevant policy developments underway and take notice of relevant studies and reports released that could help further shape supporting policies. While we acknowledge the Ministry's work throughout the discussion document, the following should be taken into consideration when developing the Emission Reduction Plans:

- New Zealand Energy Scenarios – TIMES-NZ 2.0 by BEC, EECA, PSI and more than 60 partners from across private and public energy sector: models two potential scenarios for New Zealand's energy future to 2060.
- Hard-to-abate industry strategies – the transition from large energy users to lower emissions production
- Gas Market Settings Investigation by Gas Industry Co (GIC): reviews settings that provide for gas availability and flexibility to ensure these are fit for purpose in supporting the transition
- NZ Gas Infrastructure Report by Gas Infrastructure Working Group looks at the impact of a move away from traditional gas to either electrification or new gases
- Proposed changes to the ETS including the Industrial Allocation discussion paper
- Relevant changes connected to the reform of the Resource Management Act (RMA)

- Potential benefits from large-scale flexible hydrogen production in New Zealand by the Concept Consulting: compares various flexible options for economy-wide decarbonisation
- Low Carbon Aotearoa: An energy roadmap to 2030 by the Aotearoa Circle
- World Energy Outlook 2021 by the International Energy Agency (IEA): models future energy trends

MEETING THE NET-ZERO CHALLENGE

Transition Pathway

20. We support the listed principles in the discussion documents. In addition to those principles, we strongly support, as the Climate Change Commission (CCC) recommended, the addition of a principle relating to working in partnership with business.

21. We also support the CCC draft recommendation that *"Aotearoa should focus on decarbonising its industries rather than reducing production in a way that could increase emissions offshore".* This a very important principle as carbon emission reduction to combat Climate Change is a global matter. We are not sure why this recommendation was removed in the final advice.

22. The purpose of the Climate Change Response (Zero Carbon) Amendment Act is to provide a framework to develop policies that "*contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5 degree above pre-industrial levels".* This purpose cannot be achieved if New Zealand shuts down industries that benchmark well against global peers in terms of emissions, only for the production to be replaced by higher emitting production globally.

23. 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 the whole of society – including business – to implement the plan.

24. Businesses have already stepped up to the challenge. Businesses have committed to invest $9.5 billion over the next five years to reduce their emissions.[2]

Working with our Tiriti partners

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

[2] CLC's third anniversary snapshot report

26. In transitioning New Zealand to a thriving, climate-resilient and low emissions future, central and local government should take action to ensure a genuine and enduring partnership with iwi/Māori.

Making an equitable transition

27. We support the CCC findings that the transition to a low emissions society needs to be well-signalled, equitable, and inclusive to maximise opportunities, minimise disruption and inequalities, and be enduring as a result.

28. It is important to understand that this transition will equitable, not equal. In other words, the transition will be harder and have more significant impacts on some sectors than others. Without letting hard-to-abate industry off the hook, we will have the biggest impact if we focus our attention on the areas that are easiest to abate first.

29. We support the recommendation that the Government should develop an Equitable Transitions Strategy linked to its Economic Plan.

30. We are concerned at the lack of detail regarding the future workforce and its impact on businesses. Workforce matters pose a great risk for New Zealand, particularly given that the education system is currently going through significant reform.

31. Disruption across the education and training system occurring at the same time as economic disruption has the potential to further exacerbate the skill shortages that currently exist across several industries, pulling the handbrake on increasing productivity.

32. The focus should not solely be on what to do following closures, instead it should be on retaining strategic industry where there is a medium to long-term opportunity to decarbonise.

33. The CCC modelling was light on assessing the workforce risk. At this stage we see no clear articulation from the Government that the new jobs will require a workforce commensurate with New Zealand's population.

34. We encourage the Government to work with all New Zealanders to develop an Equitable Transitions Strategy. We need to make sure that as the changes occurring, there are processes in place that ensure the full range of social, economic, environmental, and cultural impacts are given appropriate weight. Doing this ideally means that whatever pathway unfolds, we are making sure people are not left behind. An Equitable Transitions Strategy should include the following:

    - How the Government will build the evidence base for assessing the distributional impacts of climate change policy decisions that align with tikanga values.

    - Analysis of the workforce impact before the advice is finalised for the Government.

- Concrete actions that need to be taken now to support equity in the transition pending the development of an Equitable Transitions Strategy.

- A process for factoring distributional impacts into climate policy and designing social, economic and tax policies in a way that minimises or mitigates negative impacts.

- Guidance for developing localised transition plans customised for, and co-developed with, local government and affected communities.

- The use of new technologies from overseas and the need for immigration flows to support knowledge transfer and adoption.

- 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.

- A process to develop the Strategy that is inclusive and ensures all New Zealanders have a say in the policies, plans and actions needed to support vulnerable communities and those most affected by the transition.

- The strategy should recognise co-dependencies with other policy development, such as the Reform of Vocational Education and Active Labour Market policies.

- 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 the work referred to. This work should be complete by the end of 2022.

ALIGNING SYSTEMS AND TOOLS

Emission Pricing

35. We support the Government's view that the ETS is a key mechanism for reducing emissions across sectors. We agree, emission pricing allows businesses and consumers to make the most cost-effective choices for reducing their emissions. Reliance should be placed on policy instruments that act at the system level (e.g., a carbon price) before additional policy measures are introduced. In this way, various markets within that system can collectively adapt to find their most efficient response.

Improving the ETS

36. Amongst the ETS participants, there is concern about the ability to source NZUs to meet their surrender obligations going forwards. A company failing to surrender needs to pay penalties three-times the carbon price and still must source and surrender the units.

37. At present there are several initiatives that are going to reduce the volume of NZUs available. This includes NZUs being used for voluntary reasons, policies to reduce the role of exotic forests and announcements that strongly imply that the carbon price must go up which will increase speculation and encourage companies to bank NZUs. Leading to a reduction in the number of NZUs available to ETS participants with surrender obligations.

38. We therefore suggest that any proposed changes should be enabled and not undermine the ability of ETS participants to meet their obligations under the CCRA, noting that the regime associated with being unable to surrender sufficient NZUs has very severe consequences. Changes should also support the further development of the secondary market. The secondary market is currently lacking in depth and liquidity.

Dealing with Forestry

39. Forestry is a long-term investment asset and so the proposal to spend the next couple of years reviewing the role forestry (and natives) will play in the ETS undermines investor confidence in forestry at the time when we wish to incentivise afforestation both for emission reductions and for bioenergy.

40. In its discussion document, the Ministry includes various modification of the ETS to lessen the desirability of forestry offsets. We strongly caution using the ETS to control the level of post-89 forestation as it creates uncertainty for the forestry sector and wider ETS participants. It will lead to an unpredictability of supply and demand balance while policy is uncertain. We suggest the RMA as an alternative mechanism for matters related to land-use.

Forestry is not the only way to achieve sequestration of carbon emissions

41. As part of the current ETS review process, it is desirable to consider the barriers to carbon capture and storage ('CCS') caused by specific ETS rules. For some 'hard to abate' industry, CCS is the only possibility as emissions are due to chemical reactions inherent to the process. They cannot be mitigated by simple fuel switching.

42. CCS is a 'removal activity' under the Climate Change Response Act. That means the removing entity (i.e. an operator of a suitable geological formation) could receive one ETS credit for every tonne of CO2 removed and stored. However, that only applies where the capture and storage is related to a given operator's activities. So if an operator were to store carbon on behalf of a third party, that operator could not currently claim ETS credits.

43. The framework should be amended so that an entity engaged in CCS can receive ETS credits regardless of whether that entity was the source of the CO2. This issue and other barriers to CCS are covered in detail in *Carbon Capture and Storage: Designing the Legal and Regulatory Framework for New Zealand* [3].

[3] Carbon.pdf (waikato.ac.nz)

Linking the ETS with other international schemes should be seriously considered

44. Aligning the ETS with other schemes will involve the identification and analysis of desirable markets (e.g. trading partners). We strongly encourage the Government to continue to lobby internationally for a level playing field for carbon pricing.

45. Dispelling the uncertainty around the quality of international units is the most pressing matter – businesses will not be willing to purchase units if there is any doubt about their ability to subsequently surrender them (regardless of a quantitative limit).

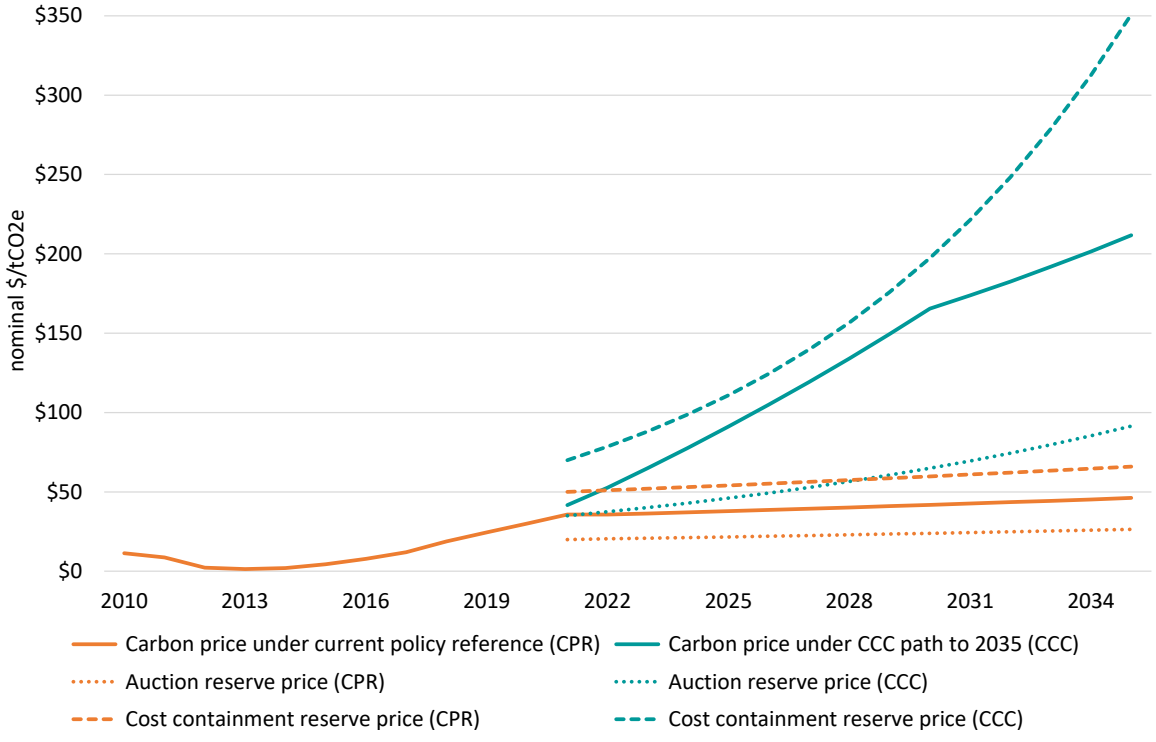
46. To dispel this uncertainty, government should pre-identify which units' businesses could surrender post-purchase and publish this list.

47. We suggest that getting this process underway should be a high priority and urge the Government to accelerate its work of identifying options for accessing international carbon markets (with safeguards on integrity).

Hard to abate sectors need more attention

48. We also feel not enough attention is given to emitters with hard to abate emissions and consumers who are caught between costs going up and the ability to respond to price signals. We would like to see more collaboration with the business sector and more sensitivity in the modelling about both the possible rate of transformative change and the carbon price.

Chart 4: Carbon price reflecting the CCC recommendation compared with the carbon price currently used in the economic modelling.



49. In many instances, the products by these industries are important to many Government initiatives, such as infrastructure, housing, renewable energy, and pollution control. Importing these products would not translate in global climate action, and could harm the New Zealand economy, including our most vulnerable regional economies.

50. The proposal to reset the baseline for EITE businesses may undermine the justification for decarbonisation investment. A return is needed for EITE, as investment without a return is merely a reduction in competitiveness with offshore producers. Incentive for investment to decarbonise would increase the liquidity for NZU secondary market, as industrial allocation could be sold to fund those investments.

51. We believe the cost of transformation will be greater if the business environment and the carbon price get out of sync. In particular:

    - will the workforce be educated and available for the new economy, will the technologies be available, will the policies be firmed up and implemented so that businesses are able to manage the uncertainties and risk as the carbon price ratchets up?

    - will the pace of technology development facilitate decarbonisation – commercialised and proven for industry?

    - will households, especially low-income households, be able to keep up with the assumed carbon price path. What are the risks of emissions leakage as a result of the proposed carbon pricing and what will be the benefits of change to New Zealand's carbon footprint to offset the costs?

Government accountability and coordination

52. We supported the CCC recommendation on the need for close coordination amongst relevant government agencies and departments.

53. The Government itself is a significant energy user. A coordinated effort through the Government's own procurement process could play a significant role in reducing New Zealand's emissions.

Funding and financing

54. We support the Ministry developing actions that help mobilise private sector finance.

55. The Government can play a great role enabling the commercialisation pathways that finance early-stage projects to support New Zealand's emissions reduction. This will be particularly useful for early-stage projects where the Government's provision of finance mechanisms can help overcome investor uncertainty and establish investment models for future private sector finance. This has worked well in commercialising projects such as the Hiringa hydrogen refuelling station infrastructure project.

56. New Zealand Green Investment Finance (NZGIF) to date has been cautious in mobilising funds and has taken a narrow focus on investable opportunities. As the countries 'green bank' – akin to Australia's Clean Energy Finance Corporation – we see that the NZGIF has the potential to be more effective in supporting innovation through expanding its investment criteria.

57. Voluntary demand for renewable energy has the potential to unlock significant levels of private investment in clean energy production. In order to maximise investment generated by these purchases, it is important the purchaser achieves maximum value from their purchase, for example by ensuring that clean energy purchases are in harmony with the existence of the ETS, or by increasing the ability for the purchaser to make clear and impactful usage claims.

Research, science, and innovation

58. Research, science, and innovation will play a critical role in enabling the reduction of New Zealand's emissions, particularly in those areas where we are uncertain, and potential outcomes are high impact (i.e. material).

59. The ETS revenue could be used for research and innovation targeted specifically at emissions reductions. This should include significantly scaling up both key areas of energy research and development (transport, industry, electricity) and agricultural research investment to enable the advancement of technology that can reduce agricultural biogenic methane and nitrous oxide emissions.

60. We support MBIE's recommendation to explore ways to foster start-ups in New Zealand that lower emissions. This should be done in conjunction with the likes of Ara Ake, Callaghan, Creative HQ and other relevant partners already working on the acceleration of start-ups.

Behaviour change – empowering action

61. We support the Ministry's intention to develop a plan regarding the use of voluntary offsetting. However, we recognise that the commentary in the ERP conflates voluntary action and voluntary offsetting. Voluntary action can also include energy conservation, purchase of clean energy directly or through attribute certificate, and other interventions such as re-investment in decarbonisation projects.

62. Voluntary action is important to many businesses. Many actions taken to voluntarily reduce emissions, such as directly purchasing renewable energy, or purchasing energy attribute certificates or carbon offsets, result in claims that are currently inconsistent with the ETS. This inconsistency reduces the ability for the entity to benefit from their activity, thus reducing their motivation to take action.

63. We support increased recognition of the potential of voluntary action to contribute emissions reductions additional to that which might otherwise have occurred. In the case of investment and clean energy purchasing, this is likely to result in mitigation rather that sequestration.

We support increased efforts by government to create an environment where voluntary action is most attractive, as a priority.

64. In its advice, the CCC states that it is widely recognised as necessary to enable a credible carbon neutral claim that a voluntary offset contributes to additional emission reductions or removals. This means voluntary offsetting delivering on top of what would occur anyway due to business-as-usual activities, including policies like the ETS. It should be noted that significant offsetting needs to be factored into ETS budgets as they represent a withdrawal of NZUs from the market.

65. Another aspect of voluntary action is avoiding double claiming, a type of double counting where more than one entity counts an emission reduction against an emissions reduction target. We reinforce the need for clarity and confidence in allowable claims, as a basis for voluntary action and as a driver for behavioural change.

TRANSITIONING KEY SECTORS

Transport

66. The transport sector is becoming increasingly interconnected. As the number of zero emission light vehicles (for example EVs and FCEVs) increases, we will see emerging connections between electricity markets and transport decision-making. Given these developments, anything transport policy makers are thinking about that requires or expects a response/investment by the electricity sector will benefit from a coordinated effort by affected parties.

67. While it is tempting to isolate a part of the energy sector (e.g. transport) and apply targets, it is almost inevitable that this will affect other parts of the supply chain. As we cannot anticipate what these effects will be, any ripple effects considered inconsistent with future government aspirations will compel government intervention in those other sectors.

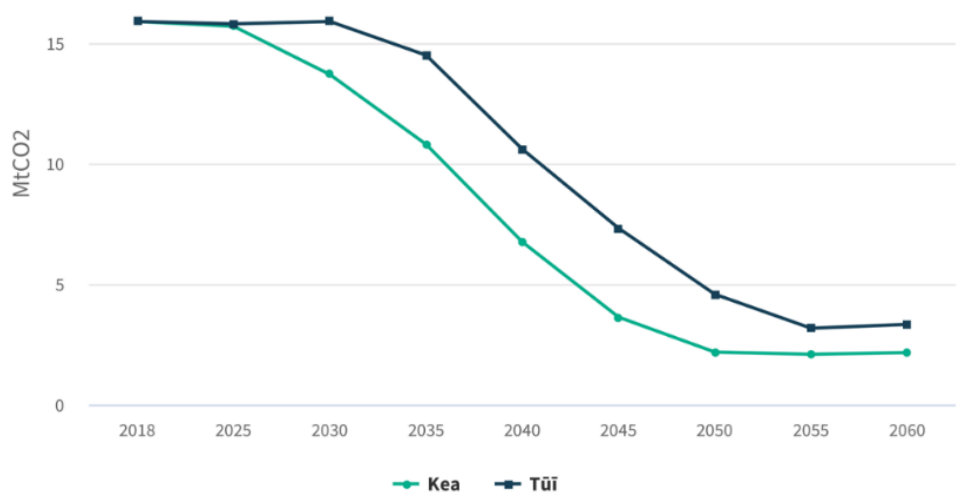
68. Transport will have a material impact on electricity and potentially woody biomass markets. Growth is likely to be incremental at first but at a scale equivalent to large industry step changes.

69. Overall, we strongly caution against being too prescriptive on the de-carbonisation options for different transport uses and would like proposed policies to be technologically neutral.

70. Typically, marginal abatement costs (MACs) are used to determine least-cost abatement options, and we would like to see these presented before the final ERP is released.

71. Our model shows transport emissions falling dramatically in line with the fall in fossil-fuelled road transport by 2050 – see chart 5. Kea transport emissions fall **33%** (with a carbon price of \$120/tCO_2) by 2035 and Tūī fall **11%** (with a carbon price of \$60/tCO_2). By comparison, in its final advice, the Climate Change Commission (CCC) suggested that transport emissions must fall around **41%** by 2035 to keep us on track to 2050.

Chart 5: Carbon Emission in Transport (MtCO2) – Kea and Tūī

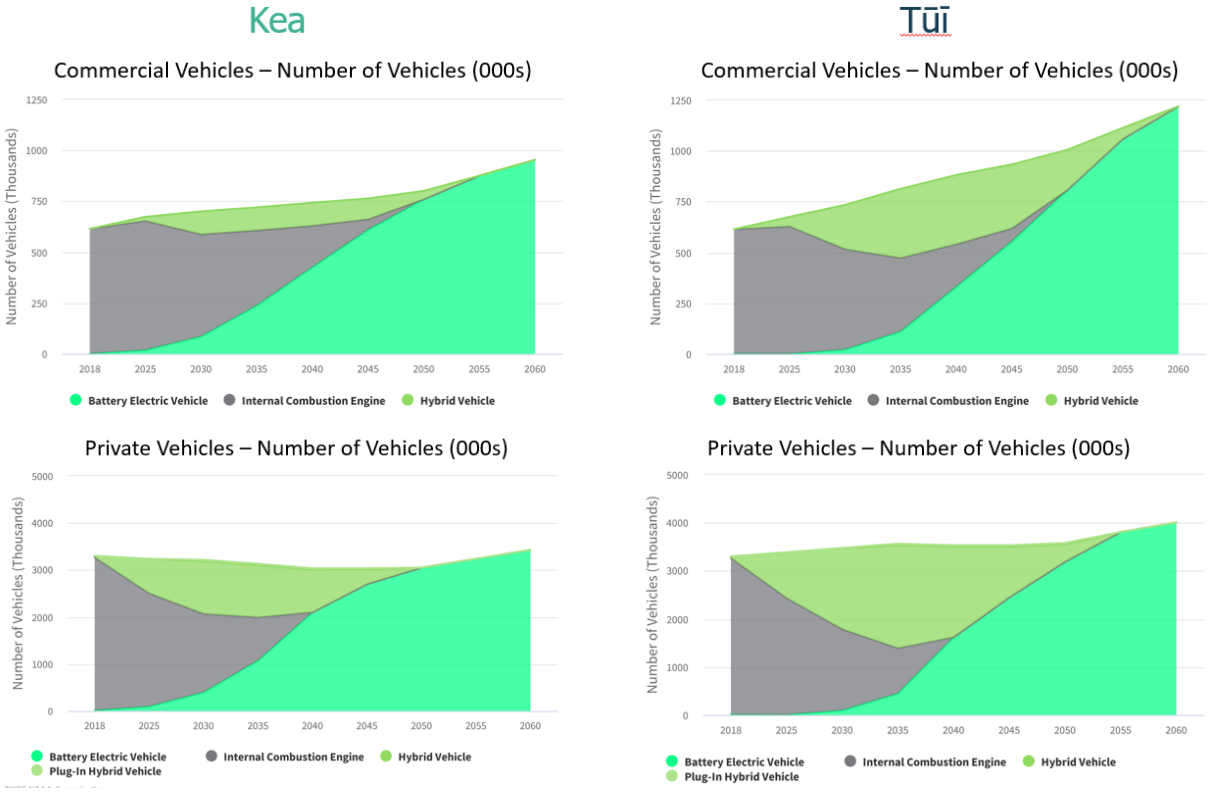


Clean Car Standard

72. We support the introduction of a Clean Car Standard. However, we have some concerns about the currently proposed emission targets which we have raised in our submission on the Land Transport Amendment Bill to the Transport and Infrastructure Select Committee.

73. In Kea, zero emission light vehicles make up **34%** of the light fleet by 2035. Under Tūī, zero emissions make up **13%** of the light fleet by 2035. As a comparison, the discussion document aims for a share of **30%** zero emissions light vehicles by 2035.

Chart 6: Number of Light Vehicles – Private and Commercial – Kea and Tūī



74. The steeper reduction in Kea's transport emissions is driven by a faster uptake of EVs and lower growth in vehicle numbers compared with Tūī. As shown in chart 6, hybrid vehicles act as a transition technology, peaking in 2030 before reducing to zero by 2050. Both internal combustion and hybrid vehicle emissions drop to zero by 2050. In Tūī, overall emissions remain steady to 2030. This plateau in Tūī is attributed to the reduction in emissions from electric and hybrid vehicles being offset by an increasing vehicle fleet.

75. All New Zealand's light vehicles are imported, and the technology developed in new vehicles is designed to meet overseas standards and requirements. New Zealand recognises standards for Australia, Europe, Japan, and North America. New light vehicles are primarily manufactured in Japan (approximately 60% of annual sales), followed by Thailand, Europe, and South Korea.

76. The decarbonisation of the transport sector relies heavily on the switch from Internal Combustion Engine (ICE) to zero emission light vehicles, yet we see real risks in our ability to secure supply. Despite our market size, there are other supply constraints to be considered, for example:

    - supply lines disrupted, shipping and freight logistics affected by the Covid pandemic (unlikely to return to normal before 2023);
    - low stocks of chips for computers affecting car manufacturing;
    - low volumes of manufacturing;
    - low battery supply in general (currently only 10% of battery demand can be supplied, and currently 70% of all batteries are provided by China); but also
    - more countries are introducing a zero emissions light vehicle target which will further constrain the global supply chain (for example, India will ban ICE by 2030).

77. While we acknowledge that the introduction of a Clean Car Standard is important as it assists New Zealand in attracting potential low emission vehicle suppliers, it is also important to uncover and consider the key risks that come with greater ambition so that all actions fully take account of costs, benefits, and potential trade-offs.

Develop an integrated national transport network to reduce travel by private vehicles and increase walking, cycling, low emissions public and shared transport

78. We support developing an integrated national transport network and agree with the CCC that this will require a regional approach allowing commercial providers and Councils to organise solutions that best suit local circumstances.

79. The expectation placed on Councils should be that first- and last-kilometre solutions are in themselves low-emissions, and that the way they are organised allows travellers to easily access low emission solutions.

80. Nonetheless, we also recognise there are risks and costs in developing such solutions which would need a close focus and tight approach to avoid poor and costly outcomes. They should also be subject to a cost benefit analysis and economic case studies.

81. We generally agree with the recommendation of improving mobility outcomes, but we think there needs to be a shift from the historical focus on supply-side interventions (e.g. increased supply of infrastructure) to actions that drive a demand response. Actions would need to be oriented towards increasing vehicle occupancy and providing reliable and integrated services for urban mobility through intelligent transport systems, resulting in lower carbon emissions.

82. This kind of strategic thinking around mobility needs to be taken up now, as capital investment decisions are being made nationally and locally. Expedience is also required because the needed behavioural change will take time to occur.

Flexible working arrangements

83. The role of flexible working arrangements and working from home in reducing transport emissions is worth exploring further. One of the CCC recommendations was to encourage higher rates of working from home and flexible work arrangements to reduce travel demand and associated emissions.

84. Perhaps more work could be done on how flexible working arrangements can contribute to emissions reduction (as a driver rather than an outcome). Encouraging remote working would be a good, least cost option for achieving net zero emissions, particularly for employees in larger cities. Encouraging the uptake of remote work might also be a lever to avoid or defer congestion charging. For example, two of our members, Contact Energy and Flux Federation have recently showcased the positive impact of flexible working arrangements not just on reducing emissions but also on reduced hours of travel and with a consequently positive impact on productivity. Both show a transport emissions reduction of between 70-75%.

85. Although we support in principle encouraging working from home arrangements, we think such decisions should also consider the social and wellbeing impacts of reduced social interaction. There are also other work barriers for many who do not have a home environment suitable for working from home, for example shared flatting or large family housing. These need to be considered.

86. Urban planning may be required to facilitate the development of localised co-working spaces to mitigate the loss of social interaction. Urban form influences emissions from a variety of sources including waste, transport, and energy. Urban planning and transportation should encourage a sense of community and social connectedness but should also continue to consider the many individuals who want to retain a vibrant city centre. For employers, working from home has health and safety implications as well since they are responsible for ensuring their employees have a safe and healthy working environment - though it is likely that at times this responsibility will in conflict with an employee's right to privacy.

Transport pricing system

87. We generally support the idea of getting the price right by better enabling demand to be managed, particularly in respect to congestion pricing. It is important that we continue improving the transport pricing system, so costs associated with vehicle use are internalised along with other transport modes, whether public transport, cycling or walking. By providing a more direct pricing signal of the real costs of all mobility choices, such a system would create stronger incentives to support low-carbon user choices while considering individuals' and households' unique preferences.

88. For example, congestion pricing might encourage desired behaviour with fewer cars on the road at peak time, potentially resulting in a reduction in transport-related emissions. Pricing mechanisms such as congestion pricing are most effective if enough flexibility exists to avoid travel during peak hours (e.g. flexible working arrangements) and/or if alternative services are available (e.g. public transport, carpooling). Otherwise, there is the risk of charges simply adding to the household bill while the suggested reduction in traffic and emissions does not occur.

Role of business in accelerating fleet transformation

89. Corporate fleets will play a major role in the move to low emission vehicles. The discussion document refers to an investigation of tax incentives. The reform of the Fringe Benefit Tax (FBT) to remove barriers will be necessary. The FBT is currently higher for a low emissions vehicle due to higher capital costs creating greater FBT liability. The Inland Revenue is currently undertaking a stewardship review of the FBT regime. This review will consider whether the regime is still fit for purpose and will inform decision-making about whether policy changes may be required.

90. We believe a full and comprehensive review of New Zealand's FBT rules is long overdue. Therefore, we would expect any discussion of changes to the FBT involving cars to be part of that wider stewardship review, not treated in isolation.

91. There are also barriers within the current WorkSafe guidelines which require employee owned EVs to be charged in a garage. This is a barrier to employees' eligibility for an EV. We ask that this requirement be changed or modified to make it more practical.

Charging Infrastructure

92. Electro mobility continues to increase the interconnectivity of the transport and electricity sectors, creating new energy security and resilience paradigms. More homes will become future petrol stations, which will affect the electricity system as low voltage networks were designed for only a few homes. The demand impact from home EV charging will be significant.

93. It will be important for EV uptake to be supported by smart charging capability. Smart charging can shift EV charging demand away from peak demand periods enabling higher

network utilisation and deferring network upgrades, resulting in lower electricity prices to consumers.

94. There is a risk with every 'passive' EV charger installed that a consumer will not be able to access demand management incentives and future savings. The individual consumer will miss out on savings, and every other user of the electricity network will miss out on a system-wide avoided cost which a smart charger could have delivered.

95. Our TIMES-NZ 2.0 modelling and modelling undertaken by distribution network operators found that demand from EVs could double network capacity requirements by 2050 if the demand isn't managed. This would increase the cost to all electricity consumers - whether or not they own an EV.

96. Distribution network operator regulation is as a relatively constrained operating environment, the regulations essentially provide cost certainty to consumers in 5-year terms. While this worked reasonably well in the last decade or so where growth was steady, increasing charging infrastructure will now require more coordination between the distribution network operator and transport-related rule-makers. This was one of the key findings in the EV Connect Project – a collaboration between Wellington Electricity, EECA, GreenSync and other relevant energy supply change industries.

97. Regulatory support will be required to allow for household data sharing to improve the planning and coordination of EV adoptions, enabling all customers to enjoy a safe, affordable, and reliable supply of electricity. The Ministry of Transport could facilitate the exchange of EV registrations so network operators can better understand where EVs are connecting.

98. We support the Ministry of Transport, Ministry of Business, Innovation, and Employment (MBIE), the Energy Efficiency and Conservation Authority (EECA) and Waka Kotahi suggestion of developing a national EV infrastructure plan. For this development, a close engagement with the energy sector will be vital.

Increase the use of low carbon fuels for Aviation, Marine, Rail and Heavy Road Transport

99. Clean fuels have a role to play in helping to decarbonise transport sectors where alternative options are not available in the short and medium term, e.g., rail, marine and aviation, in addition to heavy trucks.

100. Enabling maximum purchasing options for low-carbon fuels will be important for increasing use. Where fuels are imported, the production characteristics of these fuels will need to be understood. Where low carbon fuels are produced and used in New Zealand, a clear method to track ownership of low carbon fuels throughout the fuel supply chain will be critical to achieving maximum value and enabling economic production.

101. We support the Ministry's recommendation of working with the air transport industry to investigate the feasibility of sustainable aviation fuels in Aotearoa, complementing the

Sustainable Biofuels Mandate. There is a viable production pathway to 2025 using local feedstocks for drop in sustainable aviation fuel (SAF) production.

102. Such investigation should also consider sustainable fuels for shipping to increase the production, scale, and distribution of such alternative fuels. There is a need to further investigate the role of shipping, including international shipping, in assisting the New Zealand transport system to reduce emissions.

103. Hydrogen is a key part of the technology roadmap for electric aircrafts and with biofuels has the potential to reduce carbon emissions through the production of drop-in fuels. International shipping could also be a significant source of demand for alternative fuels, such as biofuels and hydrogen. We would encourage the Government to include this potential demand in their analysis, to ensure development happens at the appropriate scales and location.

104. In addition, the bioeconomy can decarbonise heavy vehicle fleets as well as off road/construction equipment. For long-haul heavy freight, low-carbon emission fuels such as hydrogen, biofuel, better batteries and charging, and e-based synthetics all have their advantages, but all at extra cost. Some of New Zealand's largest freight carriers have already started procuring hydrogen fuel cell electric trucks.

105. Advancing the bioeconomy also provides an opportunity to introduce hydrogen across a range of end uses – as a fuel source, supplementary and complementary. A study undertaken by Firstgas on the Hydrogen Pipeline Feasibility in New Zealand has shown that the North Island natural gas network could provide gas that is a combination of natural gas, biogas, and hydrogen with ratios that change depending on the availability of each fuel type. Any excess could be converted into liquid fuels or electricity.

106. The role of mode-shift opportunities should be examined as part of the Freight Supply Chain Strategy and for rail as part of the New Zealand Rail Plan currently being drafted. For marine, it should be looked at in the proposed national plan for reducing maritime emissions as a measure additional to low-carbon fuels and the development of shipping standards.

107. The above needs to be factored into policy to future proof necessary infrastructure.

Energy and Industry

108. The prospect of increasing complexity in energy markets suggests caution in designing policy frameworks. As mentioned in this submission, the BusinessNZ Energy Council (BEC), BusinessNZ's brand focusing on the transformation of energy, has a great deal of experience in modelling. The sector-developed TIMES-NZ 2.0 model analysis is useful to help New Zealand think about how the future energy mix might look, and the range of trade-offs and choices it might need to make along the way

109. Energy transition needs technology and society working together for the best outcomes. TIMES-NZ 2.0 can help energy leaders manage uncertainties and make more informed decisions in a world where multiple futures can play out.

110. Siloed thinking risks unintended consequences and poorly allocated resources. Interconnectivity between the electricity, industry and transport markets is already emerging, and throughout the economy the carbon price is binding decision-making together.

111. We would welcome the opportunity to expand our work with government to set out plausible, internally consistent models of the integrated energy system that could be used by government to support energy policy.

New Zealand Energy Strategy

112. We support the development of a long-term whole-of-energy strategy to decarbonise the New Zealand transport, industrial, primary, commercial, and residential sectors, developed in conjunction with business. We agree private sector leadership and action will be vital to achieve our low-emissions future which is why we believe a collaboration with industry will be critical for the strategy to be successful.

113. All New Zealand's energy sources and energy demand management options are in different stages of maturity and will play different roles in the future. Critically, if they were integrated, all parts of the energy value chain – both on the supply side and demand side – would benefit from seeing a sequenced, detailed, and inclusive plan of how the energy sector can deliver emission reductions.

114. The energy strategy should underpin the policies and markets necessary to achieve a resilient and low carbon energy future. An informed and holistic approach from government with respect to the energy sector is needed. Policy makers, businesses and consumers need more timely analysis and delivery of insights. We will look to leverage off the unique capability that resides in our model.

115. As mentioned earlier in this submission, the TIMES-NZ 2.0 model is well-placed to assess the complex interactions in New Zealand's energy system and most value will be gained by using the model to move boldly and smartly together to engage effectively with the energy system transition's many and diverse stakeholders.

100% renewable electricity

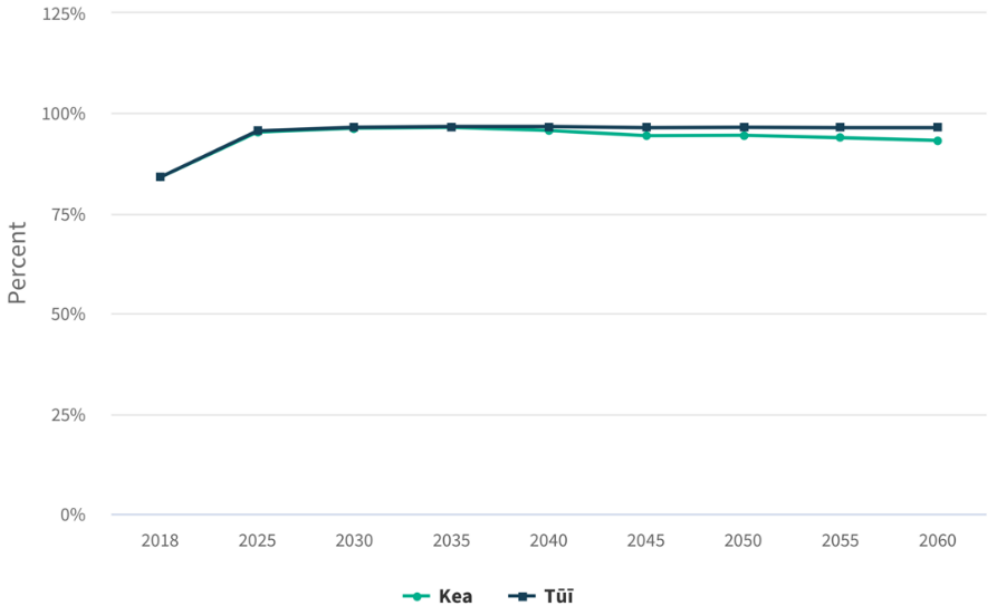
116. We agree with the Government's suggestion that a 100% renewable electricity target should be aspirational.

117. In its final advice, the CCC suggests that going from 99% to 100% renewable electricity reduces emissions by only a small amount (less than 0.3 Mt CO2e) at an emissions abatement cost of over $1,200 per tonne of CO2e. It is also very likely to result in much higher retail electricity prices than in the 'business as usual' future.

118. We also note that while the last percentage of emissions reduction from electricity is high cost and reduces emissions finally by a small amount, it ignores the degree of difficulty the market will have in delivering security of supply.

119. While both the Kea and Tūī scenarios achieve a very high renewable electricity percentage of around 95% from 2030 onwards, neither achieves 100%, as shown in chart 7. Tūī includes higher levels of geothermal and solar generation and battery storage. Kea and Tūī continue to use natural gas as a flexible fuel for meeting electricity daily and seasonal peak demands.

Chart 7 – Renewable Electricity (Percent) – Kea and Tūī



120. Careful investment in the resilience of our electricity system is required to ensure the wider economic reach of electricity is not compromised by the very problem it is trying to fix. While renewables are now more affordable, a diverse energy mix is needed to ensure energy supply.

121. Government has high expectations of the market under five separate and enduring public policy objectives: adequate investment, efficient market transactions, security of supply, equity, and the environment. The effect of the 100% renewable electricity policy (a response to the environmental policy objective) is to create anxiety that the market might not deliver seasonal security of supply – often referred to as dry year risk.

122. Our advice to government is that all opportunities to address the dry year risk must be considered. We are firmly of the view that the dry year solution must include solutions the private sector can deliver.

123. All options need to be fairly compared, including a range of emerging energy storage technologies, for example chemical battery technology, hydrogen options as well as the

opportunity to use existing hydro schemes for more flexibility through the increase of energy supply diversity. There is a need for a wide range of options to be considered.

124. We suggest a range of geographies for both centralised and decentralised options to incorporate risk management as a co-benefit. We urge the Government to work with the private sector so that the most cost-effective solutions are brought to the market.

Energy Targets

125. Targets can be helpful but need to be **backed by robust policies aimed at achieving outcomes**. Targets are helpful to the extent they have widespread buy-in, identify an overall direction of travel that helps frame the actions of market participants and embody the right balance of trade-offs between the range of potential outcomes sought.

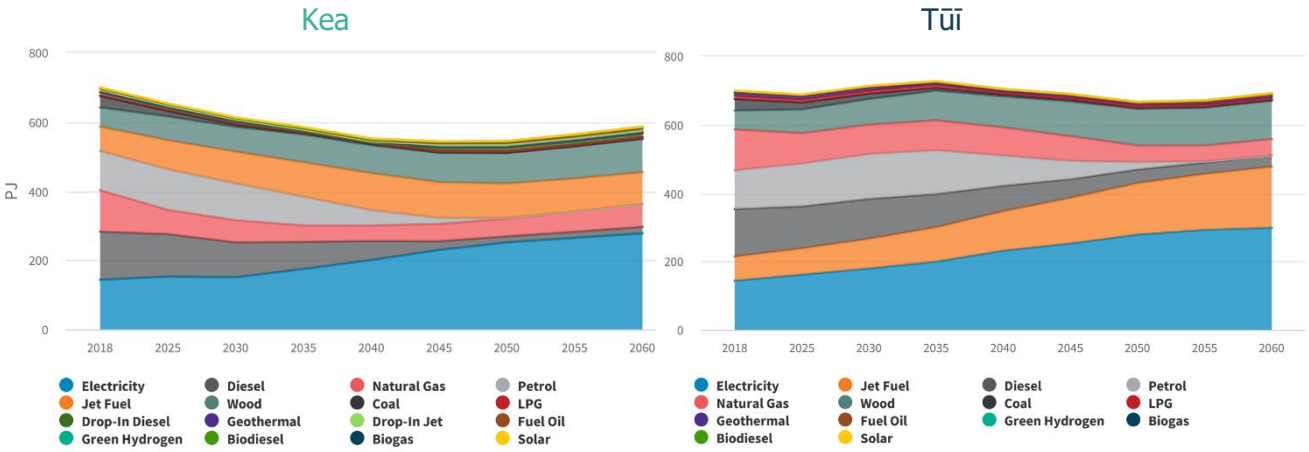
126. While targets could help business, local government, and consumers gauge commitment levels. They also make government a hostage to fortune and, since political costs can be hard to change in practice, risk raising the cost of meeting emissions targets or reaching the targets at all.

127. If the government would like to go ahead with a target, then it is important that a target is an outcome and not an input of the energy strategy. We suggest a set of key outcomes-based indicators to monitor progress towards our goals, allowing for a more informed conversation about the policy trade-offs required to reach them.

128. Chart 8 shows that between 2018 and 2050, energy demand (excluding feedstocks) met by fossil fuels declines from 63% to 22% under Kea and 33% under Tūī. In some sectors, particularly road transport, food processing, residential and commercial, fossil-fuel demand falls to a small fraction of current levels. Most remaining demand is in 'hard to abate' sectors (such as aviation, shipping, and fishing). In other words, renewables provide 78% of energy demand (excluding for feedstocks) under Kea and 67% under Tūī by 2050.

Chart 8: Total renewable energy percentage – Kea and Tūī

Chart 9: Fuel consumption all sectors PJ – Kea and Tūī



129. Chart 9 shows electricity consumption rises due to increased uptake in electric vehicles in both scenarios. Wood roughly doubles to meet industrial process heat demand. The overall benefits of energy efficiency show as even with increased demand for energy, the amount of fuel we might use could be lower or equal to current levels. Residual natural gas and jet fuel present decarbonisation challenges to come regarding shipping, aviation, fishing, and electricity security of supply.

130. The question that needs to be addressed, with business as the primary solution provider, is how effort can best be harnessed across the energy sector to achieve the necessary transformation, while balancing risks such as from investment and carbon leakage. This needs to be done in an open and transparent way, especially as we seek to reconcile the aspirations of the sector with emission-reduction commitments made.

Connectivity will be essential, and repurposing infrastructure vital to support decarbonisation

131. Any regulation to ban new gas connections could lead to stranded assets – such as the potential loss of our current gas infrastructure in the North Island. In fact, banning gas connection would be like banning connections to the electricity network. If the aim is to reduce emissions across the energy sector than any infrastructure to transport renewable fuels, including renewable gas, will be vital today and in the future.

132. Renewable gas is widely used around the world and existing infrastructure accommodates it. Instead of banning gas connections, the government could investigate a proportion of gas and LPG used in buildings and homes to come from renewable (non-fossil fuel) source.

133. Repurposing our existing gas infrastructure and appliances has value because:

— Most importantly, it minimizes stranding and replacement costs. By decarbonising gas fuels, this will avoid the cost of replacing or displacing existing gas infrastructure as well as household internal plumbing and appliances

— It increases energy system resilience. One of the key strengths of the New Zealand energy system is its diversity of supply sources and distribution channels. This is worth preserving

— It helps to fund the infrastructure required to meet other uses of gas that the CCC acknowledges in its final advice will need to continue for decades to come (such as high temperature process heat and electricity peaking and dry-year cover)

— Without further investment into our gas infrastructure, we are risking electricity supply issues, price spikes as well as a rise in carbon emissions up (usage of coal)

— Finally, it promotes consumer choice. We know that consumers value their gas connections and appliances for a range of different reasons and purposes (controllable flame cooking, instantaneous water heating that never runs out)

134. The recognition of the opportunities for renewable LPG and gas in the national energy strategy will be important, including clarity on expected progress and check in dates to assess whether these options are realising their potential.

Emissions from industrial processes

135. We support the CCC recommendation for a 'hard to abate' industry strategy to be developed in close cooperation with the specific industries. To see the necessary emissions reductions in 2035, industry cannot wait. Capital investments need to be made now.

136. Decarbonising high temperature process heat will require significant fuel switch to for example: electricity, biomass or maybe even hydrogen. All of which will impact the New Zealand energy balance of sustainability, security, and affordability.

137. Addressing the decabonisation of feedstock will be an important part of it, for example lime, urea, and cement.

138. The Kea and Tūī scenario both show that gas will continue to play an important role of as industrial feedstock for years to come.

139. We are also conscious that emissions from industrial processes are a specific area where carbon leakage could occur. This is a key area where New Zealand can choose either to take a leadership role and seek to maintain local production of materials including aluminium, methanol, steel, and lime or create policies that incentivise the taking of these activities in other countries. For example, we note the following information with regard to methanol:

— 40% of the world's methanol is produced from coal; and

— 94% of all methanol produced is not linked to any form of carbon tax.

140. We propose that policies under development affecting these industries take this potential leakage into account.

Energy emission reporting

141. We recognise the importance of good data to enable sound policy making and emissions abatement.

142. Reporting of emissions through the ETS currently captures all domestic greenhouse gas emissions across all sectors (i.e. energy, industrial processes, forestry, agriculture, and waste). From the 2020 calendar year onwards, these emissions are reported at the participant level (i.e. individual firms).

143. However, with the ETS design for the energy sector having an upstream point of obligation, we understand that end-user emissions are in many cases aggregated.

144. For many companies, energy, emissions, and production data is also being sent to MBIE's Markets team; Evidence and Insights Branch; Corporate, Governance & Information Group and to Statistics New Zealand.

145. Ahead of any decision to introduce further emission reporting requirements on companies, we strongly recommend engagement with business to fully define the objectives of the data collection and the reporting requirements.

146. The requirements must be clearly aligned with the publicly declared intended use of the data by the Government. Requirements should specify:

- the minimum threshold for reporting,
- a clear definitions of scope boundaries (1, 2 and 3) to be reported,
- the emission factors to be used,
- ownership or operational control responsibility,
- whether the data is for financial or calendar year,
- materiality guidance for reporting, and
- whether and how offsetting is attributed, etc.

147. Furthermore, consideration is also required on:

- the confidentiality of the data as at a granular level public reporting may yield commercially sensitive insights,
- the impacts of a new and different reporting requirements on firms who are already ETS participants or who have existing sustainability reporting policies, and

- the resource requirements for businesses to prepare emissions reports and for Government departments who are expected to analyse the data.

148. In the absence of answers to the above, we oppose the introduction of reporting through regulations. To develop reporting requirements further we recommend a "pilot reporting group" be set up with our members.

Buildings and Construction

Building performance instead of gas connection bans

149. While we are supportive of legislating building performance standards for both commercial and residential facilities, we do not support the setting of a date after which new gas connections will not be permitted. For example, in several countries biogas and hydrogen are used in the same infrastructure that previously relied on natural gas. The Government should not interfere with the sector's willingness to innovate and the potential opportunities for emissions reduction.

150. Buildings could be supported through the bioeconomy by adding green molecules to the existing gas network. For example, the expected carbon reduction from buildings could be achieved through a target of 20% reduction of gas by 2030 supplied to this market segment as low-carbon gases.

Energy efficiency plays a key role in decarbonisation

151. In both Kea and Tūī scenarios, the adoption of more efficient technologies increases energy efficiency and results in significantly decreased energy consumption. For example, the electricity required for residential lighting falls by 70% as incandescent lights and fluorescent lights are phased out and replaced by more efficient LED options; there is a 35% increase in industrial energy efficiency – mainly due to electric boilers and conversion to biomass -and a 70% increase in agricultural energy efficiency – mainly due to fuel switching to off-road fuels and the use of high temperature heat pumps in indoor cropping.

152. We note the Government has indicated that industry needs to both fuel-switch and perform more efficiently. Therefore, we ask the Government to be clearer in its recommendations regarding energy efficiency.

153. Energy efficiency should be the priority for every energy initiative identified in the Emissions Reduction Plan. 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.

154. We see this as a significant opportunity to reduce emissions and improve energy equity. Energy Efficiency cuts household bills, most notably amongst those struggling to adequately heat their homes in winter, in relation to business operating costs, and by providing

thousands of local construction jobs in every area of the country. An inclusive and well-planned climate transition must have this energy equity plan at its heart.

Agriculture

155. We generally support the package of recommendations and actions for the agriculture sector, with its focus on a holistic approach. However, the 2021 budget allocates only a total of $11m over the 2021-25 period for business, science and innovation activities aimed at accelerating agricultural climate change research and on-farm emissions mitigation. This compares with the appropriations that the Minister of Research, Science and Innovation is responsible for in the 2021/22 financial year of $1,221 million.[4] Given the scale of both the downside risk and the upside opportunities associated with agriculture emissions, this is a very small proportion of New Zealand's public R&D budget and needs to be increased.

Accelerate and secure investment in R&D

156. We support the CCC's call for accelerated and secured investment channels for R&D to meet the 2030 and 2050 targets. We believe some of these, such as a fast-tracked pathway for methane reduction technologies, could yield major rewards, for example the potential for methane inhibitors to lower emissions by 30%. Future technology solutions for biogenic methane can benefit farming and give New Zealand's overall pathway to 2050 added flexibility.

157. A long-term plan and investment for targeted research and the development of new technologies to reduce biogenic methane emissions are critical, as is the development and adoption of methane reduction technologies through a public-private initiative to catalyse a transformational shift in investment and leverage international expertise and capital.

High potential in wetlands

158. Wetlands are very effective in capturing carbon, though more needs to be done to understand and account for this. We believe greater emphasis should be put on wetlands as part of the overall strategy.

Need for a flexible approach

159. We believe that given uncertainties over the effectiveness of mitigation technologies in the primary sector, it will be important for regular reviews to take place to ensure climate change policy is flexible and refined to take account of changing scientific and economic evidence. Furthermore, policies must allow the primary sector to identify and pursue the most cost-effective mitigation methods as these become technically and commercially viable.

[4] Vote Business, Science and Innovation, Page 35

A cooperative approach that avoids carbon leakage

160. We emphasise that needed investment will require a genuinely cooperative partnership between the primary sector and government to achieve low-emissions food production for both New Zealanders and export markets. Given the significance of the primary sector to the New Zealand's economy, it will be important to avoid policies that suppress profitable primary production and are higher cost ways of abating emissions. Such policies could cause losses in market share for efficiently produced, relatively low emissions primary exports and their replacement by high cost, higher emissions products. Outcomes of this kind would be both detrimental to the New Zealand economy and to the goal of reducing climate change.

Waste

161. We do not fully endorse all the recommendations made by the Ministry in relation to waste. We would encourage careful consideration of the proposal to ban the disposal of food, green and paper waste at landfills for all households and businesses by 1 January 2030.

162. As a general principle, individuals and companies should bear the full costs of their behaviour (i.e. costs should be internalised) as there will be an over-consumption of resources if costs can be shifted on to third parties. Waste minimisation is no different. If rational decisions are to be made about waste minimisation, those involved should ideally bear the costs (and receive the benefits) associated with specific options/outcomes.

163. It is important to understand that there is an optimal amount of waste, just as there is an optimal amount of resource that should be spent on crime prevention etc. Waste cannot be eliminated completely, at least not without great cost.

164. Waste reduction might be possible but beyond a certain point the marginal cost of waste minimisation becomes progressively higher, while the potential returns reduce. Economies of scale are often important when dealing with certain waste streams, particularly relevant for smaller businesses facing the disproportionate cost of having waste and recycling companies pick up smaller amounts of recyclable or specialised waste.

165. In some instances, waste could be re-purposed as a fuel. However, this will require significant work to ensure that this is done in an environmentally responsible way. Guidance and certification for this could be carried out by central Government, and the ETS could be improved to allow easier calculation of lower carbon emissions.

Landfills

166. A modern engineered landfill is classified as renewable energy in the Greenhouse Gas Protocol guidance for carbon footprinting and can capture up to 95% of the methane from organic material. This demonstrates that these landfills are already managing and reducing emissions, and many are also a source of renewable energy.

167. With the above in mind, organic material could be processed in anaerobic digestors to generate biogas for injection into the North Island gas pipeline. This would be more valuable to many users as biogas rather than electricity and the material coming out of the digester can also be used for soil amendment rather than being locked up in a landfill. To enhance the effect, residential connections to the network could be curtailed while industries with hard to replace thermal fuel needs utilised the biogas.

Waste incineration

168. Waste incineration is commonly applied in OECD countries of which the Scandinavian region is a leading proponent:

- A report for IEA Bioenergy "Waste Incineration for the Future - Scenario analysis and action plans" by a Swedish team shows waste incineration has a role within a future circular economy.[5]

- Denmark is Europe's top waste burner. Incineration accounts for about a fifth of district heating and about 5 percent of its electricity. Denmark's waste-to-energy incinerator, Amager Bakke, is so well known it has become a tourist attraction and is celebrated as one of the world's cleanest waste-to-energy incinerators.[6]

169. We encourage the Government to be open to waste incineration application and/or gasification in New Zealand to provide energy and reduce landfill demand.

Focus on the Bio Economy

170. We believe the most important aspect of waste is understanding how it fits into the bioeconomy and what should be occurring with what waste and where to provide the least-cost solution for New Zealand overall. As part of the proposed bioeconomy strategy and subsequently the proposed energy strategy, we recommend a comprehensive study be undertaken to inform an overall plan. Items to consider include:

— Where are different types of waste coming from?

— Are there thermal/electrical loads around high waste areas?

— Where should compost be prioritised over other organic disposal methods?

— Where should anaerobic digestion be prioritised over other organic disposal methods?

— Can anaerobic digestion/pyrolysis be utilised to provide inputs into energy systems, including:

- North Island Natural Gas network

[5] Waste-Energy-for-the-Future-IEA-version.pdf (ieabioenergy.com)

[6] The incinerator and the ski slope tackling waste - BBC News

- Local energy hubs for large industries
- Liquid fuel consumption market, including petrol, diesel, and LPG?

Waste information is lacking

171. We support more funding for education and behaviour change initiatives to help households, communities and businesses reduce their organic waste.

172. Lack of waste data is a key issue. We would suggest that a comprehensive study should be undertaken to understand what waste is available where, in what quantities. This will provide an important input into the bioeconomy strategy.

173. We also understand there is a lack of knowledge by waste emitters about options for waste disposal. We recommend an education programme is undertaken to upskill emitters as to their options, and the benefits of these.

174. Collaboration across sectors (emitters and energy users) is required to reduce the lumpiness of supply and enable better utilisation of expensive assets. This relates directly into the bioeconomy strategy.

Forestry

175. We agree with the Ministry that forestry will play a critical role in meeting our net carbon emission reduction targets. Forestry will also provide a source of renewable materials to develop future fuels to lower our emission footprint from fossil fuels.

176. Given the uncertainties inherent in other mitigation options, arguably at least comparable to the risks of loss of carbon from exotic and native forests, it is prudent to allow the ETS price signal to drive investment in this area. This price signal will naturally adjust as new emissions reducing technologies and methods emerge.

177. In its discussion document, the Ministry includes various modification of the ETS to lessen the desirability of forestry offsets. However, we strongly caution against using the ETS to control the level of post-89 forestation as it creates uncertainty for the forestry sector and wider ETS participants. It will lead to an unpredictability of supply and demand balance while policy is uncertain. We suggest the RMA as an alternative mechanism for exotic planting control.

178. There have been various policy initiatives that affect forestry and land use over recent years, undermining the confidence needed to make long term investments. Further changes, especially if involving land use constraints, are likely to be counterproductive. It might therefore be beneficial to pace and manage any changes by prioritising them and stretching out the timeframe for lower priority policy initiatives.

Exotic Forest

179. Exotic forest will continue to provide one of the most cost-effective ways of capturing carbon over coming decades, allowing other cost-effective technologies and methods time to be developed, both within New Zealand and offshore, and to come on stream. Examples of these technologies and methods could include methane inhibitors, as discussed in the agriculture section above, and lower emission sheep and beef genetics, particularly the use of genomics, as well as a wide variety of other possibilities.

180. Exotic forests store carbon 3-7 times faster and at much higher levels than native forests. This is especially so, if the trees are grown for longer periods, or as permanent forests. Good examples are growing redwoods or eucalypts as permanent forests, or pine forests for periods of 100 years or more. Using exotics would mean we need to afforest a much smaller area at much lower cost than indicated by the CCC's final advice.

181. While we believe a mixed forestry model is the best solution for New Zealand, we question whether incentivising native afforestation is cost-effective, and a good investment of taxpayer funds compared with other decarbonisation activities required for our transition.

Native Forest

182. The cost of establishing a greenfield native forest is high and likely to be between $5,000 - $10,000 per ha. There is also a high risk of failure, especially in drier areas, and a requirement for ongoing pest control.

183. Work will be needed on the incentives necessary to convince private landowners to plant natives rather than exotics. These incentives may stem from biodiversity and water quality benefits, but we note that while there are co-benefits from native forests, these also exist for exotic forests, including water quality, and erosion control.

Appendix One - Background information on BusinessNZ and BEC

BusinessNZ is New Zealand's largest business advocacy body, representing:

- Regional business groups EMA, Business Central, Canterbury Employers' Chamber of Commerce, and Employers Otago Southland
- Major Companies Group of New Zealand's largest businesses
- Gold Group of medium sized businesses
- Affiliated Industries Group of national industry associations
- ExportNZ representing New Zealand exporting enterprises
- ManufacturingNZ representing New Zealand manufacturing enterprises
- Sustainable Business Council of enterprises leading sustainable business practice
- BusinessNZ Energy Council of enterprises leading sustainable energy production and use
- Buy NZ Made representing producers, retailers, and consumers of New Zealand-made goods

BusinessNZ can tap into the views of over 76,000 employers and businesses, ranging from the smallest to the largest and reflecting the make-up of the New Zealand economy.

In addition to advocacy and services for enterprise, BusinessNZ contributes to Government, tripartite working parties and international bodies including the International Labour Organisation (ILO), the International Organisation of Employers (IOE) and the Business and Industry Advisory Council (BIAC) to the Organisation for Economic Cooperation and Development (OECD).

The BusinessNZ Energy Council (BEC) is a group of New Zealand's energy sector organisations taking a leading role in creating a sustainable energy future. BEC is a division of BusinessNZ, New Zealand's largest business advocacy group. BEC is a member of the World Energy Council (WEC). BEC members are a cross-section of leading energy sector businesses, government and research organisations. Together with its members BEC is shaping the energy agenda for New Zealand.

Our vision is to support New Zealand's economic wellbeing through the active promotion of the sustainable development and use of energy, domestically and globally. With that goal in mind, BEC is shaping the debate through leadership, influence and advocacy.