EECA's submission to the Climate Change Commission's 2021 draft advice for consultation

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Letter from the Chair

To the Climate Change Commission,

On behalf of the Energy Efficiency and Conservation Authority (EECA), I would like to congratulate the Commission on the release of its draft advice. This represents the first major release from the Commission and the product you have delivered reflects the amount of work that has gone into its development.

It is essential for New Zealand to have clear, evidence-based, independent advice on how we can progressively meet our 2050 net zero emission targets. The Commission's draft advice provides a clear message that the emissions budgets and proposed policy direction are 'ambitious but achievable'.

EECA has prioritised its resources to provide input to the Commission's work, based on our experience working with the public and private sectors to encourage, promote, and support the uptake of energy efficiency, energy conservation, and the use of renewable sources of energy in New Zealand.

EECA's purpose and statutory functions mean we have an important role as the authority and delivery agency for the government's response to several key areas covered by the Commission's advice. Our current work programme already supports reducing the carbon footprint across a wide range of sectors. We look forward to continue working with the Commission, wider government, industry and the public on our transition to a low emission economy.

Kind regards

Elena Trout

Chair, EECA Board

About EECA

The Energy Efficiency and Conservation Authority (EECA) is the Crown entity established under the Energy Efficiency and Conservation Act 2000 to encourage, promote, and support the uptake of energy efficiency, energy conservation, and the use of renewable sources of energy in New Zealand. This mandate provides us with the authorising environment to work with a wide range of stakeholders and customers, as we transition to a low carbon and sustainable economy.

Our Strategy

Our purpose

Mobilise New Zealanders to be world leaders in clean and clever energy use.

Our strategic principles

Focus on impact

Understand the customer

Define the problem

Join the dots

Display Leadership

Our strategic focus areas

Productive and low-emissions business

Motivate decision makers to accelerate action.

Efficient and low-emissions transport

Switch to efficient low-emissions technology and fuel to move people and goods.

Energy efficient homes

Optimise New Zealand's use of renewable energy at home.

Government leadership

Lead the transition to a low-emissions economy for the benefit of all.

Engage hearts and minds

Create an enabling environment for systemic change, where sustainable energy is expected and demanded.

Key points of EECA's submission

EECA generally supports the Commission's advice and recommendations

EECA welcomes and supports the Commission's overarching finding that we can meet our 2050 targets with existing technology, noting that significant change and action is required as well as the need to overcome some of the cost barriers associated with the existing technology. EECA strongly advocates that interventions such as supporting energy efficiency and the uptake of electric vehicles, and the move to renewable energy sources for our process heat needs can make a significant contribution to our decarbonisation goals.

We recognise there are many new low emission technologies being developed in most sectors of the economy, and these have the potential to unlock significant emission reduction options with the increasing potential for lower cost decarbonisation pathways. However, the long timeframes normally required to scale up new technologies and the urgency of our need to decarbonise mean the existing barriers need to be overcome.

We appreciate the Commission has not been tasked with identifying specific policies, this is the role of the Government. As a result, there are a number of the Commission's recommendations that we support in principle, but there will need to be further work to determine viable policy solutions.

The scale and breadth of policy work that is required to develop the Government's Emission Reduction Plan means that it is essential this work is well coordinated across government departments. The structures and frameworks to ensure this happens are currently being developed and we agree with the Commission's advice that these will be critical to enabling coordinated and timely action.

EECA has a key role in implementing the policies that would flow from the Commission's advice

EECA's function under the Energy Efficiency and Conservation Act 2000 is to encourage, promote, and support energy efficiency, energy conservation, and the use of renewable sources of energy. Given that a significant portion of New Zealand's emissions are from energy, emission reduction has become the primary focus of our strategic and operational activity. The goals of efficient use of energy, the use of renewables and emission reductions are inseparable.

EECA works in an interesting space — we are a Crown Agent but have close relationships with both Government and industry. This gives us a unique ability to provide the Government with an 'ear to the ground' to understand the impact of policies on businesses and improve the evidence base and implication of policy development.

We utilise our three levers, motivation (public engagement and behaviour change), co-investment and regulation to carry out our functions. We are the authority on behalf of Government in a range of areas related to emission reduction and we are one of the few government agencies currently directly investing in emission abatement through co-investment in low emission technologies. Our public engagement campaigns such as Gen Less and earlier successful campaigns related to reducing energy and energy efficiency have demonstrated our role and experience in promoting low emission behaviours.

Given our experience with direct emission mitigation projects, we welcome this opportunity to make a submission to the Commission on the draft Budgets and share our insights.

There are a few key areas of focus for EECA

There is a lot of interdependence between the areas covered by the Commission's advice. We have focussed our submission on the main areas of relevance to EECA's activities. This is primarily transport, heat, industry and power and the multi-sector strategy.

Given the wide range of subject matter and recommendations covered by the Commission's advice, it is essential there is coherence as an overall package. For this reason we strongly support the recommendations that relate to developing overarching strategies, such as the national energy strategy or bioeconomy plan, to provide clear and coherent direction. Targets such as those proposed by the Commission should be developed as part of those strategies and include strong transition planning, to ensure the targets are consistent, based on strong evidence, do not create perverse outcomes and support the overall outcome of reducing greenhouse gas emissions. While reducing emissions, it is important to also maintain a path towards an equitable and affordable transition to a low emission economy.

Another point that is relevant across all sectors is the important balance between effort to transition existing technology and processes, compared to interventions that stop the introduction of new high emission technologies and processes. Using the vehicle fleet as an example, it will be much more difficult to transition the existing fleet to low emission vehicles if we continue importing high emission vehicles into the fleet. For this reason we recommend that Government should place short-term priority on initiatives that keep high-emitting technologies out of the country as well as restricting domestic asset investment that does not align with our low emission goals.

The sector-specific key points in EECA's submission are summarised below.

Transport

- EECA generally agrees with the Commission's advice relating to reducing travel by private vehicles and shifting to low emission modes.
- We strongly support the Commission highlighting accelerating light electric vehicle (EV) uptake as a time-critical necessary action and the recommendations to achieve this.
- We agree that EV supply constraints and high upfront costs are two of the key barriers that need to be addressed to increase EV uptake. EECA's work suggests supply constraints are likely to limit the extent to which all domestic market segments can be supplied with EV's until about 2030.
- Noting the potential short/medium term supply constraints for EV's, it would be valuable if the Commission could include analysis on the uptake of Internal Combustion Engine (ICE) hybrids (as a cost effective near term transition option for consumers) and the impact this would have on its modelling scenarios and EV uptake up to about 2030.
- The recommendation to develop a national charging infrastructure plan is of particular relevance to EECA and we are working with government departments to progress this.
- We agree that low carbon fuels such as biofuel and hydrogen could play a role in decarbonising hard to electrify transport applications but currently there are considerable cost barriers to overcome before widespread uptake could occur.
- EECA supports the development of 'green' hydrogen (produced from renewable electricity) that is economic and can cost-effectively reduce emissions compared to alternatives. However, in line with the Commission's approach to rely on existing technologies to transition, the assumptions on emissions reductions delivered by the hydrogen pathway should be conservative as there are still major barriers to overcome.
- We urge caution with the Commission's proposal to set a volumetric target for biofuel uptake, based on the potential for domestic production using woody biomass. Biofuels are not all low emissions, so a volumetric target does not ensure emission reduction is the priority.
- We suggest that an aggregate emission reduction target for all low carbon fuels would be more appropriate, based on wider analysis of fuels and feedstocks, including technical feasibility, demand-supply dynamics or maximising emissions reductions.
- EECA recently commissioned research regarding liquid biofuels which accompanies our submission. The research covers demand and supply constraints, technology readiness for drop-in biofuels and life-cycle and supply chain emissions analysis by feedstock. This will help to better understand the viable biofuel sources with greatest emission reduction potential, whether imported or domestically produced.
- The Commission's recommendation for the development of a national plan for the bioeconomy (Necessary Action 6) would be an appropriate and valuable opportunity to discuss the priority uses of our bio-resources, including the place for biofuel.

Heat, industry and power

- EECA generally agrees with the Commission's recommendations. Our detailed submission includes some qualifying statements and issues for further consideration.
- EECA agrees that process heat, along with transport, is one of New Zealand's best emissions reduction opportunities. In EECA's experience, achieving this potential will require government to work alongside industry to overcome the financial and non-financial barriers to rapidly transitioning from fossil fuels to renewables.
- EECA highlights the Government Investment for Decarbonising Industry (GIDI) fund as an example of a mechanism to realise the technical potential to accelerate emissions reduction in process heat.
- Electrification is a key pillar in the Commission's decarbonisation plan, however the necessary actions in the advice document do not capture all of the most critical changes needed to maximise the use of electricity to support the transition. Many advice recommendations are incremental or peripheral. In particular, electricity market settings and generation investment should be highlighted as an area of policy focus. Optimising electricity demand through efficiency improvements will also be a critical enabler to transport and process heat electrification.
- EECA agrees with the Commission that electrification will be critical to decarbonising the economy. Given the scale and complexity of the challenge of achieving a rapid, economy-wide electrification that is optimal and equitable, EECA advocates for a similar approach to that recommended elsewhere, for example for the bio-economy. A strategy or roadmap for electrification will be a critical component of any national energy strategy, to achieve a fit-for-purpose electricity system that enables decarbonisation while maintaining security of supply and optimising system-wide cost.
- EECA strongly supports developing a national energy strategy (potentially by updating the New Zealand Energy Strategy 2011-21) and agrees there is good rationale for expanding New Zealand's policy focus beyond achieving 100% renewable electricity generation to encompass renewable energy use more broadly.
- EECA agrees there is a need for long-term planning on bio-resources, including prioritisation of use (particularly between liquid biofuels for transport, biomass for process heat and the underlying primary existing use of biomass as wood fibre for various uses e.g. construction and packaging).
- EECA supports measures to increase the energy efficiency of buildings, and also notes the significant co-benefits of improved buildings in terms of health and wellbeing. However, due to emission reduction potential we caution investment in this area before more cost effective emissions reductions are achieved elsewhere e.g. process heat.
- Regarding buildings, EECA strongly endorses a strategic view being taken of New Zealand's future energy systems. A number of overseas jurisdictions are moving to 'all-electric' homes and commercial buildings as a low-cost decarbonisation pathway, and to avoid stranded assets in gas distribution infrastructure. The national energy strategy should therefore consider the best timing of a potential ban on new gas connections (as recommended by the Commission), and the role of biofuels.
- We agree that the interrelationship between land use, transport and infrastructure justifies significant attention from Government and that emission reduction needs to be prioritised in decision making.

Multi-sector strategy

- We strongly support the proposal that behaviour change at organisational and business level, as well as an individual one, is critical to achieving our emission reduction targets. EECA has promoted behaviour change through the "Gen Less" public engagement platform since 2019.
- We support measures to engender coordinated action on behaviour change and suggest several steps to support this through concrete deliverables and dedicated funding.
- EECA strongly agrees with the recommendations related to aligning investment with climate outcomes (as well as it being a time critical necessary action) and we offer some comment and questions that may assist the commission in clarifying its advice for maximum impact.
- EECA agrees with the recommendations for a general strengthening of ETS settings and the intent behind these, but the specific wording in the advice could potentially be enhanced and clarified.
- We support the recommendation about clarifying the role of voluntary mitigation, although it would be helpful if the Commission could provide a clearer position. This could be used as a starting point for inter-agency discussion on the matter.

EECA's response at a glance

Key:	We favour	Recommend change	We do not favour

Transport

Necessary action 2 - Develop an integrated national transport network to reduce travel by private vehicles and increase walking, cycling, low emissions public and shared transport		
We recommend that, in the first budget period the Government progress the following steps to meet emissions budgets:		
a		Deliver specific and timebound targets to increase low emissions public and shared transport and walking and cycling, and supporting infrastructure through strengthening the direction of the Government Policy Statement on Land Transport.
b		Significantly increase the share of central government funding available for these types of transport investment, and link funding with achieving our emissions budgets.
c		Improve mobility outcomes through measures including supporting public transport uptake nationally and locally by reducing fares for targeted groups (such as for those under 25 years of age), and improving the quality and integration of services.
d		Encourage Councils to implement first and last kilometre travel solutions in their transport networks, such as increased on-demand and shared vehicle and bike services, secure park and ride solutions at public transport, and encouraging micro-mobility options.
e		Further government encouragement for working from home arrangements.

Time-critical necessary action 2 - Accelerate light electric vehicle uptake		
Light electric vehicle uptake needs to be accelerated as fast as possible. To meet our proposed emissions budgets and be on track for 2050, at least 50% of all light vehicle (cars, SUVs, vans and utes) and motorbike imports should be electric by 2027 (both battery EV and plug-in hybrid EV). To achieve this, we recommend in the first budget period the Government:		
a		Place a time limit on light vehicles with internal combustion engines entering, being manufactured, or assembled in Aotearoa, other than in specified exceptional circumstances. The limit should be no later than 2035 and, if possible, as early as 2030.
b		Introduce a package of measures to ensure there are enough EVs entering Aotearoa, and to reduce the upfront cost of purchasing light electric vehicles until such time as they are cost competitive with the equivalent ICE vehicle.
c		Improve the efficiency of the light vehicle fleet and stop Aotearoa receiving inefficient vehicles by introducing an emissions target for light vehicles new to Aotearoa of 105 grams CO2 per kilometre by 2028.
d		Develop a charging infrastructure plan for the rapid uptake of EVs to ensure greater coverage, multiple points of access and rapid charging, and continue to support the practical roll out of charging infrastructure.

Progress indicators		
a		Government to have consulted, no later than 30 June 2022, on preferred policy options for accelerating EV uptake (including a date for placing a time limit on the import of ICEs).
b		Cabinet decisions on preferred policy options to be made, as soon as possible but no later than 31 December 2022, on accelerating EV uptake.
c		Government to have implemented regulations on improving the fuel efficiency by 30 June 2022.

Necessary action 3 - Accelerate light electric vehicle uptake		
We recommend that, in the first budget period the Government make progress on the following:		
a		As part of a policy package introduce a fiscal incentive, such as a feebate or subsidy, to reduce the upfront cost of EVs until such time as there is price parity with ICEs.
b		As part of an equitable transition, evaluate and support interventions such as leasing, hire and sharing schemes to remove barriers and address some of the upfront capital costs of EVs.
c		Investigate ways to bulk procure and ensure the supply of EVs into Aotearoa and work with the private sector to do so.
d		Evaluate how to use the tax system to incentivise EV uptake and discourage the purchase and continued operation of ICE vehicles.
e		Work with the private sector to roll out EV battery refurbishment, collection and recycling systems to support sustainable electrification of light vehicle fleet.
f		Evaluate the role of other pricing mechanisms beyond the NZ ETS, such as road pricing, can play in supporting the change to a low emissions and equitable transport system.
g		In setting these policies the Government needs to mitigate impacts for low-income households and people with disabilities, regional and remote access, and with limited access to electricity.

Necessary action 4 - Increase the use of low carbon fuels for trains, ships, heavy trucks and planes		
We recommend that, in the first budget period the Government take the following steps to support the use of low carbon fuels for heavy vehicles such as trucks, planes, ships, and off-road vehicles to meet emissions budgets:		
a		Set a target and introduce polices so that at least 140 million litres of low carbon liquid fuels are sold in Aotearoa by 31 December 2035.
b		Introduce low carbon fuel standards or mandates to increase demand for low carbon fuels, with specific consideration given to aviation.
c		Introduce incentives to establish low emissions fuel plants, such as biofuel sustainable aviation fuel, and make those fuels more competitive with traditional fossil fuels.
d		Place further emphasis on decarbonising the rail system, and establish an investment strategy and clear targets to increase the share of rail and coastal shipping.

Heat, Industry & Power

Time-critical necessary action 3 - Target 60% renewable energy no later than 2035		
Setting a target for renewable energy enables the Government to signal the required emissions reductions across the full energy system. Within that context, the 100% renewable electricity target should be treated as aspirational and considered in the broader context of the energy system that includes electricity, process and building heat and transport. We recommend the Government:		
a		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.
b		Under the framework of the national energy strategy, set a renewable energy target to increase renewable energy to at least 60% by 31 December 2035.

Progress indicator		
		The Government to have, by 30 June 2023, set a renewable energy target of at least 60% by 31 December 2035, set milestones for 2025 and 2030, and released an energy strategy to deliver this target.

Necessary action 5 - Maximise the use of electricity as a low emissions fuel		
We recommend that, in the first budget period the Government take steps to ensure a low emissions, reliable and affordable electricity system to support electrifying transport and industry through progress on the following:		
a		Under the framework of a national energy strategy, set a date by which coal electricity generation assets must be retired.
b		Under the framework of a national energy strategy, decide how to progress solutions to the dry year problem, when this should happen, and at what cost.
c		Introduce measures, such as a disclosure regime, to reduce wholesale electricity market uncertainty over Emissions Budgets 1 and 2, to encourage investment in new renewable generation.
d		Assess whether electricity distributors are equipped, resourced and incentivised to innovate and support the adoption on their networks of new technologies, platforms and business models, including the successful integration of EVs.
e		Enable more independent generation and distributed generation, especially for remote rural and Māori communities, and ensure access to capital for this purpose.
f		Monitor and review to ensure electricity remains affordable and accessible, and measures are in place to keep system costs down, such as demand response management.

Necessary action 6 - Scale up provision of low emissions energy sources		
We recommend that, in the first budget period the Government make progress in scaling up the provision of new low emissions fuels by:		
a		Developing a plan for the bioeconomy alongside the new national energy strategy, across transport, buildings, energy, waste, land use and industry.
b		Assessing the place that hydrogen has in the new national energy strategy.

Necessary action 7 - Reduce emissions from process heat		
We recommend that, in the first budget period the Government take steps to reduce carbon emissions from fossil fuelled boilers by:		
a		Urgently introducing regulation to ensure no new coal boilers are installed.
b		Introducing measures to help reduce process heat emissions from boilers by 1.4 Mt CO2e over 2018 levels by 2030 and by 2 Mt CO2e by 2035.
c		Increasing support for identifying and reporting on emissions reduction opportunities in industry, including energy efficiency, process optimisation, and fuel switching.
d		Helping people to access capital to reduce barriers to the uptake of technology or infrastructure upgrades such as boiler conversions, energy efficiency technologies, and electricity network upgrades.

Necessary action 8 - Support innovation to reduce emissions from industrial processes		
We recommend that, in the first budget period the Government take steps to support innovation in hard-to-abate industrial processes, including by:		
a		Developing a long-term strategy for the future of hard-to-abate industries, including iron, steel making, cement and lime production and petrochemical production. This strategy should be developed alongside the national energy strategy, future Economic Plans and strategies for an equitable transition (see time-critical necessary actions 1 and 3).
b		Based on the outcome of the strategy, investigating whether bespoke solutions requiring research and development specific to Aotearoa will be required.

Buildings

Necessary action 9 - Increase energy efficiency in buildings		
We recommend that, in the first budget period the Government introduce measures to transform, transition and reduce energy use in buildings. Measures should include:		
a		Continuing to improve energy efficiency standards for all buildings, new and existing stock, through measures like improving insulation requirements. Expand assistance which targets low-income households.
b		Introducing mandatory measures to improve the operational energy performance of commercial and public buildings.
c		Setting a date by when no new natural gas connections are permitted, and where feasible, all new or replacement heating systems installed are electric or bioenergy. This should be no later than 2025 and earlier if possible.

Necessary action 10 – Reduce emissions from urban form		
We recommend that, in the first budget period the Government promote the evolution of urban form to enable low emissions transport and buildings through ongoing legislative reform:		
a		Develop a consistent approach to estimate the long-term emissions impacts of urban development decisions and continually improve the way emissions consequences are integrated into decision making on land use, transport and infrastructure investments.
b		Ensure a coordinated approach to decision making is used across Government agencies and local councils to embed a strong relationship between urban planning, design, and transport so that communities are well designed, supported by integrated, accessible transport options, including safe cycleways between home, work and education.

Multisector

Necessary action 9 - Increase energy efficiency in buildings		
	●	We recommend that, in the first budget period the Government embed behaviour change as a desired outcome in its climate change policies and programmes in order to enable New Zealanders to make choices that support low emissions outcomes.

Time-critical necessary action 6 - Align investments for climate outcomes		
To meet emissions budgets and achieve the 2050 target, it is important that policy decisions and investments made now do not lock Aotearoa into a high emissions development pathway. Safeguards and signals will be needed to prevent this, including a specific focus on ensuring long-lived assets such as infrastructure are net-zero compatible. To achieve this, we recommend in the first budget period the Government:		
a	●	Immediately start to factor target-consistent long-term abatement cost values into policy and investment analysis in central government. These values should be informed by the Commission's analysis which suggests values of at least $140 per tonne by 2030 and $250 by 2050 in real prices.
b	●	Encourage local government and the private sector to also use these values in policy and investment analysis.
c	●	Ensure that economic stimulus to support post-COVID-19 recovery helps to bring forward the transformational investment that needs to happen anyway to reach our joint climate and economic goals.
d	●	Investigate and develop a plan for potential incentives for businesses to retire emissions intensive assets early.
e	●	Require the Infrastructure Commission to include climate change as part of its decision- and investment-making framework, including embedded emissions and climate resilience
f	●	Investigate and develop plans to mobilise private sector finance for low emissions and climate-resilient investments.

Progress indicators		
a	●	Government to start, as soon as possible and by no later than 31 March 2022, factoring target-consistent long-term abatement cost values into policy and investment analysis.
b	●	Government to publish, as soon as possible and by no later than 31 March 2022, how the COVID-19 economic stimulus is helping to accelerate the climate transition.

Time-critical necessary action 7 - Driving low emissions choices through the NZ ETS		
The Emissions Trading Scheme (NZ ETS) needs to drive low emissions choices consistent with emissions reduction targets in Aotearoa, including a focus on gross emissions reductions. In the first budget period the Government should:		
a		In the next annual update to NZ ETS settings:
i		Align unit volumes with emissions budgets, taking into account the need to reduce the NZU stockpile.
ii		Increase the cost containment reserve trigger price to $70 as soon as practical and then every year by at least 10% plus inflation.
iii		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.
d		Amend the NZ ETS so that it contributes, as part of a package of policies (see time-critical necessary action 5), to delivering the amount of afforestation aligned with our advice on the proportion of emissions reductions and removals, consistent with budget recommendation 2.
c		Establish a sound market governance regime for the NZ ETS as soon as possible to mitigate risks to market function, as some of these risks are potentially catastrophic for the scheme's effectiveness. This work should be advanced through an interagency team including MBIE for its financial markets expertise.

Progress indicators		
a		Government ensure that, in the next annual update to the NZ ETS settings, unit volumes are aligned with emissions budgets and price control settings are increased.
b		Government to develop proposals as soon as possible to establish a sound market governance regime for the NZ ETS, and to have legislated to address the most significant risks by no later than 30 June 2023.

Necessary action 19 - Continued ETS improvements		
We recommend that, in the first budget period the Government make progress on:		
a		Developing options and implementing a plan for recycling some or all of the proceeds from NZ ETS unit auctions into emissions reductions, adaptation, equitable transitions and meeting international climate change obligations.
b		Undertaking a first principles review of industrial allocation policy.
c		Continuing to phase out industrial allocation.
d		Exploring alternative policy instruments that could address the risk of emissions leakage.
e		Providing more information to reduce uncertainty about adjustments to NZ ETS settings, particularly how it intends to manage unit volumes in light of the split-gas 2050 target.
f		Clarifying the role and avenues for voluntary mitigation in Aotearoa.

Consultation question 1: Principles to guide our advice

Do you support the principles we have used to guide our analysis? Is there anything we should change, and why?

EECA supports the principles as proposed. In particular:

Principle 3: Create options –

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

Principle 4: Avoid unnecessary cost –

on as natural an investment cycle as possible in order to reduce the overall costs of the transition, while identifying areas where we can move faster and the barriers that need to be overcome.

The challenges and costs associated with transitioning existing infrastructure and fleets means that significant attention should be placed on interventions that restrict the adoption of new high emission technologies and processes. This needs to be done with urgency to avoid locking in emissions and future cost associated with stranded assets. The Commission seems to take this approach in several areas, as demonstrated by recommendations related to stopping the import of internal combustion engine vehicles, banning coal boilers etc. We suggest that this could be reflected in Principle 4 or included as a separate principle.

Principle 7: Leverage co-benefits –

EECA has long advocated the co-benefits of energy efficiency, conservation and renewable energy. These range from the health and wellbeing benefits of warmer, dryer, more energy efficient homes, to the potential of energy efficiency to act as a 'jobs machine'. According to the International Energy Agency, every $1 invested in energy efficiency retrofits for houses and small business internationally, $0.60 goes to labour costs.[1]

[1] *https://www.iea.org/articles/energy-efficiency-and-economic-stimulus*

Consultation question 4 : Limit on offshore mitigation for emissions budgets and circumstances justifying its use

Do you support budget recommendation 4? Is there anything we should change, and why?

EECA supports the recommendation to limit offshore mitigation for the first emissions budgets. EECA's work has identified there is a significant pool of emissions reductions opportunities that could be unlocked domestically at a cost for government and taxpayers below the cost of offshore mitigation (particularly if you only accept high quality credits from credible markets). Energy efficiency also has well-documented co-benefits[2] that can be realised within New Zealand if we pursue domestic mitigation.

[2] *Capturing the Multiple Benefits of Energy Efficiency – Analysis - IEA*

Consultation question 9: Establish processes for incorporating the views of all New Zealanders

Do you support enabling recommendation 5? Is there anything we should change, and why?

EECA supports the intent to make New Zealanders' views front and centre of the discussions that need to happen to balance the fairness of the transition. We do not suggest change to this recommendation but we see an opportunity to use EECA's existing Gen Less platform to further these objectives.

EECA's own research into perceptions about climate change and energy emissions shows that New Zealanders understand the need to take climate action, but are seeking direction on how this should occur and what role they need to play. With the right level of effort and investment we can address this through public education, awareness and communication.

A majority of New Zealanders want others to do more to reduce our climate change impact. EECA research (January 2019) found that 88% of people want companies to do more, 76% want government to do more and 76% want other people to do more. It also found that there are some important information gaps or linkages that need to be made in the minds of consumers, such as strengthening the link between transport and consumers overall energy emissions.

If government intends to step proactively into engaging with the public on climate change it will be important to identify shared objectives across relevant agencies, which can guide coordinated action on public awareness, communication and education. As a starting point we have laid out three potential cross-government objectives below:

- ensure the public are **well-informed** and understand government plans and policies
- **engage people in effective consultation and co-development** on plans and policies to help ensure the best decisions are made for New Zealand and New Zealanders as we transition to a low emissions economy
- motivate people to **take action** in their own lives to reduce emissions and make **long-term decisions** that will support the transition.

Any effort to inform and engage New Zealanders should build upon what is already in place. EECA's public Gen Less platform, is a well-suited and increasingly well-recognised platform to host a public engagement programme which seeks to increase the public and business' engagement with climate change.

Consultation questions 13: An equitable, inclusive and well-planned climate transition

Do you support the package of recommendations and actions we have proposed to increase the likelihood of an equitable, inclusive and well-planned climate transition? Is there anything we should change, and why?

EECA supports the emphasis placed on ensuring that the climate transition is equitable and inclusive.

Of particular relevance for EECA, the Commission's Necessary Action 1 (d) recommends there is a need to "Assess the Government's current standards and funding programmes for insulation and efficient heating to determine whether they are delivering at an appropriate pace and scale, and how they could impact housing and energy affordability. The Government should give particular consideration to potential flow through costs to tenants, and to government owned housing stock".

EECA's current low-income home retrofit programme Warmer Kiwi Homes is one of government's key interventions in alleviating energy hardship in New Zealand. It is the latest iteration of a low-income home retrofit subsidy programme that has been running in various forms since 2009. Since the start of the current programme in July 2018, 53,177 retrofits (39,491 insulation and 13,686 heating respectively) have been completed.

EECA regularly reviews the design and targeting of this programme to ensure that it delivers maximum benefit to low-income households at maximum cost-effectiveness for public money. A recent cost-benefit analysis returned a benefit to cost ratio for this programme of 4.7:1.

EECA is beginning a scheduled outcome evaluation of the WKH programme which is expected by February 2022. This will provide an important source of information for the design of future wellbeing interventions.

Consultation question 14: Transport

Do you support the package of recommendations and actions for the transport sector? Is there anything we should change, and why?

Necessary action 2 - Develop an integrated national transport network to reduce travel by private vehicles and increase walking, cycling, low emissions public and shared transport

EECA supports action to increase the use of low emission transport modes, such as walking, cycling and public and shared transport, as well as optimising or reducing travel.

EECA research shows that only 4 in 10 New Zealanders understand that transport is their single largest contributor to carbon emissions. Behaviour change will be a key enabler to help people to choose low emission transport modes such as walking, cycling and public transport and alternate choices such as working from home. EECA's Gen Less campaign has been getting the message out to the public to help people understand the impact of their transport choices on carbon emissions.

Nearly a third of car trips in New Zealand are under 2km[3] , and there is opportunity for these "first and last kilometre" trips to be provided by other low emission transport modes and services. EECA agrees that a key challenge to address will be the provision of safe, affordable, convenient and accessible frequent public or shared transport choices. Provision of infrastructure and the design of cities and regions will allow the shift away from private fossil fuel vehicle use and EECA will support the role of government agencies in this important work.

EECA has also supported the demonstration of several electric bus and car share projects through the Low Emission Vehicle Contestable Fund. These technologies and services are now being rolled out in cities around New Zealand, however, there is a need to accelerate their adoption.

6 in 10

Kiwis don't understand that transport is their single largest contributor to carbon emissions

NEARLY

1/3

of car trips are under 2kms

[3]Ministry of Transport NZ Household Travel Survey Data 2015-2017.

Time-critical necessary action 2 - Accelerate light electric vehicle uptake

EECA supports the Commission highlighting the transition of the light vehicle fleet as a time critical necessary action. New Zealand's emissions breakdown makes it clear that the light vehicle fleet provides the greatest opportunity for reducing transport emissions, particularly as there are low emission alternatives already available in the form of battery and plug in hybrid electric vehicles.

The modelling of the Commission's preferred path includes the following forecasts relating to the uptake of electric vehicles (EV):

- 50% of light vehicle imports will be electric by 2027, with 40% of the fleet electric by 2035.
- Of the trucks imported in 2030, 15% of medium trucks and 8% of heavy trucks would be electric. By 2035, these would increase to 84% and 69% respectively.

This modelling appears quite optimistic, however we acknowledge it is dependent on a number of assumptions that represent significant coordinated policy action, as well as overcoming supply constraints and seeing the closing of the significant price gap between EV's and internal combustion engine vehicles.

Below are EECA's comments on the Commission's recommended package of measures for accelerating light electric vehicle uptake.

Recommendation A - Place a time limit on light vehicles with internal combustion engines entering, being manufactured, or assembled in Aotearoa, other than in specified exceptional circumstances. The limit should be no later than 2035 and, if possible, as early as 2030

EECA agrees that it will be necessary for New Zealand to set a date from which the importation/manufacture/assembly of light internal combustion engine vehicles will not be allowed. With the target year of the Clean Car Import Standard being 2025, and many of our trading partners adopting similar policies, it seems appropriate to set this date sometime between 2030 and 2035, as suggested by the Commission.

Recommendation B - Introduce a package of measures to ensure there are enough EVs entering Aotearoa, and to reduce the upfront cost of purchasing light electric vehicles until such time as they are cost competitive with the equivalent ICE vehicle

We agree that EV supply constraints and high upfront costs are two of the key barriers that need to be addressed to increase EV uptake.

Constraints to the access of electric vehicle supply from overseas markets could result in a scarcity of vehicle volume and choice, potentially slowing the progress of transitioning the domestic fleet. EECA's work suggests that:

- In the near term (up to 2025) there are expected to be supply constraints because of the limited number of EV models and volumes being produced, which is expected to limit the extent to which all domestic market segments can be supplied. Further compounding this is the limited domestic sales of EV's in Japan, which limits what is available to import into New Zealand particularly as second hand vehicles. This warrants New Zealand looking at emerging EV manufacturing markets to secure EV supply, not just Japan.
- By 2030 it is expected that global production rates of new vehicles increases and there are unlikely to be supply constraints for imports of new EV's. This can be further supported by strategic supplier sourcing strategies with other emerging markets such as China, who is already a major producer and consumer of EV's (although it does not export high volumes currently). Policies will further enable access to the models and volumes of vehicles to be supplied into New Zealand.

Noting the potential short term supply and cost constraints for EV's, it would be valuable if the Commission could include analysis on the uptake of Internal Combustion Engine (ICE) hybrids and the impact this would have on the modelling scenarios and EV uptake in New Zealand, recognising the current dependence (~60% of used vehicles are imported from Japan) and the recent trend of increased hybrid vehicle imports (new and used) from Japan.

We note that the supply of EV's to New Zealand is primarily influenced by the commercial decisions of overseas vehicle manufacturers, and the Government has little ability to change that. However, manufacturers are known to prioritise supply to countries with 'EV-friendly' policies, such as strong vehicle emissions standards and discounts on upfront vehicle cost.

While the upfront cost of electric vehicles is currently acting as a barrier to EV uptake, we note that the lower ongoing costs (such as fuel and maintenance) compared to fossil-fuelled vehicles improves the competitiveness of electric vehicles[4].

The Commission assumes that lifetime price parity between EV's and ICE vehicles will be reached by 2024. This is a realistic assumption, but the timing of upfront capital cost parity may be of more importance to stimulating EV uptake. EECA's work suggests capital price parity between light EV's and ICE vehicles being reached in about 2030.

The assumption of price parity convergence and increase of EV manufacturing to meet supply-demand imbalances by 2030 will support a rapid acceleration of EV uptake from this time. However, we agree that the scale and urgency of the decarbonisation required from the light vehicle fleet means that strong supporting policies are needed immediately to accelerate the fleet transition as much as possible.

Recommendation C - Improve the efficiency of the light vehicle fleet and stop Aotearoa receiving inefficient vehicles by introducing an emissions target for light vehicles new to Aotearoa of 105 grams CO2 per kilometre by 2028

EECA supports the introduction of a vehicle fuel economy standard and welcomes the Government's announcement that the target year for the Clean Car Import Standard will be 2025.

Recommendation D - Develop a charging infrastructure plan for the rapid uptake of EVs to ensure greater coverage, multiple points of access and rapid charging, and continue to support the practical roll out of charging infrastructure

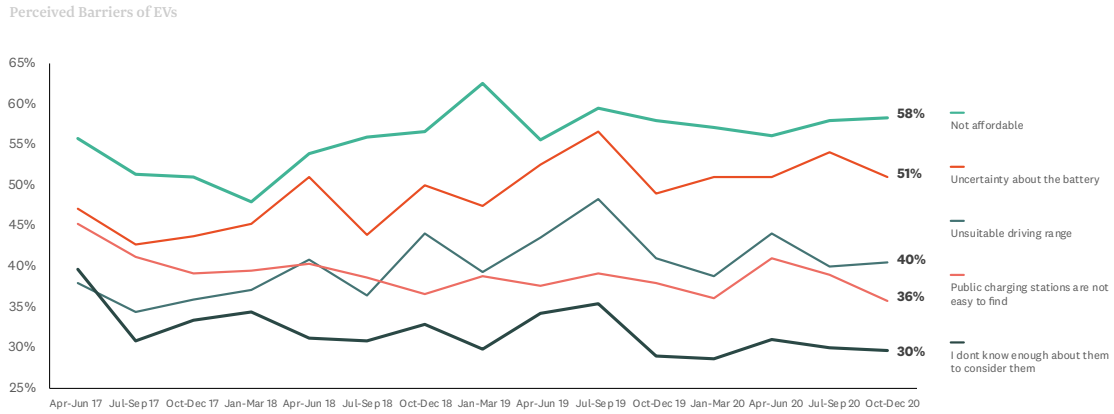
EECA has had an important role in the rollout of New Zealand's electric vehicle charging network. The Low Emission Vehicle Contestable Fund has provided co-funding to over 1,100 EV charging projects (over 600 for public EV chargers). So far, the rollout of New Zealand's EV charging network has started from a low base and is led by a few charging service providers. This has been an appropriate approach up to this point as the number of electric vehicles on the network has been low. However, with the introduction of policies to significantly increase the uptake of EV's, a more coordinated plan for future EV charging infrastructure and investment is required.

EECA supports the recommendation of a national EV charging infrastructure strategy and is working with other government departments to advance this work.

Any charging strategy should go beyond simply setting out the proposed location and level of investment required for public EV charging infrastructure. The strategy should also factor in and be able to respond to the future EV uptake scenarios that influence charging requirements, wider electrification policies and strategies, current government programmes for co-investment and feed into consideration of electricity distribution network upgrades. The factors will vary across the short term and long term, and be influence by the rapidly changing nature of technology and EV owner expectations and needs. The plan should also consider issues such as the asymmetry of information, lack of competition, capability and capacity from charging infrastructure providers, rural gaps, low and middle-income communities, workplace and commercial buildings and residential charging.

Necessary action 3 - Accelerate light electric vehicle uptake

EECA also supports the range of recommended actions for accelerating light electric vehicle uptake under Necessary Action 3. A coordinated package of actions is needed to make the New Zealand vehicle market more supportive of EV's, including reducing the cost and increasing the supply of EVs in New Zealand. EECA's consumer monitoring shows that the upfront cost premium of electric vehicles is the primary barrier to EV uptake in New Zealand.



[4]*EECA analysis on total cost of ownership of EV and ICE.*

Necessary action 4 - Increase the use of low carbon fuels for trains, ships, heavy trucks and planes

EECA agrees that a range of low carbon fuels, such as biofuel and hydrogen, will be needed for New Zealand to decarbonise hard to electrify applications such as planes and ships. Our view is technologically agnostic – we anticipate that the 'right' fuel will vary from application to application. It is not clear at this stage whether applications in heavy duty road freight will be better suited for direct electrification or use of low carbon liquid or gaseous fuels, or a combination of both.

Hydrogen

In 2019, EECA jointly commissioned Concept Consulting to undertake research on the cost effectiveness of hydrogen technologies for decarbonising the New Zealand economy relative to alternatives[5]. We also recently assisted Are Ake in their initial study of the economics of using green hydrogen to decarbonise long-distance heavy freight in New Zealand. Through the delivery of our funding programmes, we have also had insight into hydrogen technology and applications.[6]

EECA supports the development of 'green' hydrogen (produced from renewable electricity) that is economic and can cost-effectively reduce emissions compared to alternatives. Growing policy commitment and global investment have the potential to make hydrogen a commercially viable low-carbon alternative to some fossil fuel applications in the future (as New Zealand is a technology taker). Green hydrogen is part of the journey to electrifying the economy and its role should be considered as part of any electrification strategy (or the national energy strategy, as referred to later).

At present, there are significant challenges for the commercial scale deployment of green hydrogen in New Zealand relative to its carbon abatement impact. EECA agrees that there are significant barriers and challenges on both the supply and demand side for hydrogen to become an economically viable alternative.

Deployment of hydrogen in New Zealand still remains in the demonstration phase. Pilot and demonstration projects have the potential to de-risk the technology for first adopters and reduce safety, regulatory and technical barriers.

Biofuel

EECA recently commissioned research regarding liquid biofuels, which covers demand and supply constraints, technology readiness for drop-in biofuels and life-cycle emissions analysis by feedstock.

We have attached this report to this submission as it informs EECA's view on the liquid biofuels opportunity for New Zealand.

> Recommendation A - Set a target and introduce polices so that at least 140 million litres of low carbon liquid fuels are sold in Aotearoa by 31 December 2035

From discussion with the Commission, we understand this target was calculated based on liquid biofuels (but is currently worded to also cover other low carbon liquid fuels). Due to the variance in lifecycle emissions of different biofuel types and feedstocks, we suggest that a volumetric target (i.e. in litres) may not be the best approach to achieve emissions reductions. We would support instead an emissions reduction target (i.e. in CO2-e) for low carbon fuels.

The 140ML target appears to be based on production estimates from available wood feedstock rather than on a wider analysis including technical feasibility, demand-supply dynamics or maximising emissions reductions. This raises several points:

- The life-cycle emissions vary a lot from one biofuel to another (mainly depending on feedstock and associated land use change). Therefore, life cycle emissions reduction should be the main driver of any biofuel policy (especially incentives) in order to prevent the use of biofuels with poor emissions benefits (or even increased emissions compared to fossil fuels).
- There might be more valuable (such as chemicals) or efficient (such as direct combustion for process heat) uses of wood than the production of liquid biofuels. A national discussion is needed on what are the priority uses of this limited resource. The Commission's recommendation for the development of a national plan for the bioeconomy (Necessary Action 6) would be an appropriate and valuable opportunity for this discussion to take place.
- So as not to delay action while developing a bioeconomy plan, interventions such as a biofuel mandate or low carbon fuel standards should still be implemented (which prioritise the emissions and sustainability of the biofuel) so long as adequate conditions apply for life cycle emissions of the biofuels supplied into the blended fuels.

[5]The research, titled 'H2 in NZ - A study of the potential economics of hydrogen technologies in New Zealand' can be found here: https://www.concept.co.nz/updates.html.

[6]Low Emission Vehicles Contestable Fund (Round 9 Hyundai FCEV trucks project and Round 5 Ports of Auckland Hydrogen Demonstration project).

- The blending limits for biodiesel and bioethanol suggest that the potential demand for these fuels on an energy basis could be 6% of current demand for diesel fuels by heavy trucks and marine, and 6% of current demand for petrol fuels by light vehicles respectively (biodiesel is not suitable for aviation). This potential could be realised immediately with the import of biofuels, rather than waiting to set up a domestic production industry to provide 3% of demand (as seems to be suggested in the Commission's draft advice). It would be useful if the Commission could be more explicit about if it sees a role for biofuel importation.
- The potential incremental demand for drop-in diesel is much higher assuming a 50% concentration limit, i.e. around 44% of total energy required by diesel heavy trucks, marine and aviation, and 47% of total energy required by light petrol vehicles.
- Our research suggests that, due to technological readiness, production of drop-in biofuel from wood biomass is unlikely to be at scale before 2035.
- Our research includes a progressive scenario where liquid biofuel uptake increases from 0.88 PJ (28.38 million litres) p.a. in 2022 to 8.06 (256.5 million litres) p.a. by 2030, reaching a maximum output of 43.14 PJ (1,287.2 million litres) p.a. by 2043.

Recommendation C - Introduce incentives to establish low emissions fuel plants, such as biofuel sustainable aviation fuel, and make those fuels more competitive with traditional fossil fuels

This recommendation seems to cover incentivising production of biofuels, as well as incentivising demand for biofuels (reducing the cost premium of the fuel).

Demand and production are two different aspects and we feel should be treated separately in the Commission's advice.

The experience with Marsden Point shows that ensuring availability for the domestic market is more complex than building a local production capacity: securing feedstock is a starting point, and ensuring demand is key.

The challenge is that feedstocks are globally tradable commodities, as are biofuels. This can create a complete disconnect between local production and local availability.

We agree that there may be a role for incentives for increasing demand in the short term. However, we are cautious about the proposal to provide incentives for domestic production. The opportunity cost to subsidise domestic production is unlikely to be justified by domestic emissions reduction only, and there is a need to factor in other considerations such as security of supply, economic impact, competing usages for the feedstock and factors that would result in a competitive advantage for production in New Zealand.

The capital cost alone for producing 100 million litres by 2030 would be in the range of $300-$760 million, depending on the conversion technology[7]. Such projects will not take place if investors have low confidence in capital cost recovery and prospects to scale production to reduce costs per unit of energy.

We suggest that the potential for incentives for biofuel production or demand should be considered as part of the wider bioeconomy plan recommended in Necessary Action 6. This would need to consider the risks of government support for biofuel production, including:

- New Zealand subsidising production of biofuels which are then exported to other countries.
- New Zealand developing production capacity which is put in global competition for feedstock.
- New Zealand taking technology development risks in isolation - the scale of investments call for global effort.

7 For FT catalysis and hydro-cracking, the estimate assumes a current capex of $9.12/litre fuel as per (BioPacific Partners, 2020), and a 3% p.a. learning curve to 2030. For pyrolysis oil upgrade, the estimate assumes a capex value of $3.03-$7.6/litre fuel depending on whether the hydrogen is produced or purchased. This cost range is derived from capex estimates by (Wright, et al., 2010) for the n-th plant and a pioneer plant. The pioneer plant is assumed to be built in 2035, and the n-th plant in 2025.

Off-road diesel

We would like to draw the Commission's attention to an opportunity not mentioned in the advice and that might have been overlooked: Off-road diesel. This umbrella term refers to the following (non-road) uses of diesel:

Sector	Application examples
Aviation	Airport ground service equipment
Rail	Rail maintenance equipment
Marine	Recreational boating, personal watercraft, fishing
Agriculture	All-terrain farm vehicles, farm motorcycles, tractors
Construction	Off-road trucks and tractors, generators, machinery
Industrial	Forklifts, generators, other industrial equipment
Mining	Mining equipment, off-road mining trucks
Forestry	Forestry equipment, off-road logging trucks
Residential	Residential lawn and garden equipment
Commercial	Commercial lawn and garden equipment, heating, forklifts
Government	Defence, lawn and garden equipment
Recreational	Motorsport, off-road motorbikes

There was about 36PJ of non-transport diesel use in 2019 (including an unknown portion for heating). This is equivalent to 2.6 Mt CO2e/year, so the opportunity for emission reduction is likely to be within the range of 1 to 2 Mt CO2e/year.

EECA has commissioned research to increase the understanding of this opportunity, for which solutions such as hybrid and biofuels could be relevant. We will share these insights with the Commission when they are available in mid-2021.

In the meantime, the Commission could mention the opportunity of off-road diesel in the list of potential targets for low-carbon fuels in its advice.

Consultation question 15: Heat, industry and power sectors

Do you support the package of recommendations and actions for the heat, industry and power sectors? Is there anything we should change, and why?

Time-critical necessary action 3: Target 60% renewable energy no later than 2035

> Recommendation A - 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

EECA supports the development and implementation of a long-term national energy strategy to transition away from fossil fuels to renewable fuels. It is essential that this strategy includes strong transition planning to ensure it doesn't create perverse outcomes (such as switching away from one energy source too soon leading to overall increased emissions or impacting the affordability of consumer electricity etc).

We note we are in the final year of the existing New Zealand Energy Strategy 2011-2021. Any energy strategy should be complementary to and aligned with the New Zealand Energy Efficiency and Conservation Strategy (NZEECS) which is to be updated in 2022.

> Recommendation B - Under the framework of the national energy strategy, set a renewable energy target to increase renewable energy to at least 60% by 31 December 2035

EECA agrees there is technical and economic potential for New Zealand to significantly increase its use of renewable energy, and that doing so will be critical to achieving New Zealand's climate change goals.

Under the NZEECS, New Zealand has an existing target of 90 per cent of electricity generation from renewable sources by 2025. EECA agrees there is good rationale for expanding New Zealand's policy focus beyond the electricity generation mix to encompass renewable energy use more broadly and potentially framed as an emissions reduction target. This approach aligns with the overall goal of reducing economy-wide emissions. An appropriate energy target should be developed as part of any long-term energy strategy, with emissions reduction prioritised as the outcome.

The development of a target should be based on an accurate evidence base. We note the current 40% renewable energy figure, and presumably 60% target, is based on Total Primary Energy Supply (TPES). We note that TPES is significantly impacted by the treatment of geothermal electricity generation[9] and consequently a TPES renewable energy target may not be the most appropriate.

[9]This occurs because International Energy Agency (IEA) rules for calculating TPES treats geothermal electricity generation differently to hydro, solar or wind electricity generation. In essence, all the energy extracted from geothermal fluid is added to the TPES rather than the net electricity generation. As the thermodynamic potential of low temperature heat is low, only about 15% of this extracted geothermal heat becomes electricity that is available for use. If geothermal electricity generation was accounted for the same way as hydro generation, i.e. electricity exported from the power station, then New Zealand's renewable energy percentage would fall to around 26%.

Necessary Action 5: Maximise the use of electricity as a low-emission fuel

EECA agrees electrification will be critical to achieving New Zealand's climate change objectives. Optimising electricity demand through efficiency improvements will be a critical enabler to transport and process heat electrification. EECA's 2019 Energy Efficiency First report found potential for cost-effective efficiency measures that collectively comprise an estimated 10-12% of electricity demand. At costs between $15-$50/MWh, this efficiency potential is significantly cheaper than even the lowest-cost new renewable generation currently available [10].

EECA has a range of existing policies that contribute to this, including energy product regulations under the trans-Tasman Equipment Energy Efficiency (E3) Programme. The 86 million products sold under the programme since 2002 have saved 59.55 PJ of electricity, equating to $1.45 billion of national benefit, and 2.33 Mt of CO2-e. It will also be critical to ensure market and regulatory settings enable and encourage the integration of new innovative technologies, such as demand response / flexibility and battery storage, to improve power system flexibility and security as the percentage of electricity supplied by intermittent renewables increases.

EECA supports the Commission's recommendations below, as they will contribute to achieving a fit-for-purpose electricity system that enables decarbonisation via electrification. However, given the scale and complexity of the challenge they are unlikely to be sufficient to overcome the barriers to achieving rapid, economy-wide electrification that is optimal and equitable. EECA therefore suggests a similar approach to electrification to that recommended elsewhere, for example for the bioeconomy. An 'electrification strategy' (or 'roadmap') will be a critical component of any national energy strategy, to ensure an optimal and coordinated increase in electricity demand and supply across the economy while managing the many barriers and issues that are likely to arise, in particular:

- Security and predictability of demand: major new sources and locations of electricity demand (new connections) need to be signalled early enough to allow infrastructure investment to keep pace, and to ensure price 'stability'
- Ensuring the cost of upgrading transmission and distribution infrastructure is spread equitably and rationally across the electricity system
- Ensuring the regulatory framework and consent and planning rules do not unduly dis-incentivise new generation or use of electricity as an energy source
- Energy Efficiency First: by optimising electricity demand, energy efficiency will be a critical enabler to electrification across the economy
- Future proofing: ensuring New Zealand's electricity system enables (and does not unnecessarily dis-incentivise) the adoption of new technologies and innovations will be critical to optimising the transition to an electrified economy.

Such an electrification strategy will require input from a range of public and private stakeholders across the electricity system.

The Commission provides a number of recommendations under this action covering a wide range of areas. It would be useful if these recommendations could more explicitly provide a sense of priority, to assist consideration of where resource is best focussed.

> Recommendation A - Under the framework of a national energy strategy, set a date by which coal electricity generation assets must be retired

Any regulation to mandate the phase-out of coal or other fossil fuel electricity generation assets should be considered carefully under the framework of a national energy strategy and balance the energy trilemma of affordability, sustainability and security.

Whether mandating the phase-out of coal electricity generation is necessary to achieve a highly renewable electricity system that enables electrification while balancing the trilemma will need to be carefully considered in the context of New Zealand's climate goals and existing market and policy settings. Mandating the retirement of plant is just one option among other options that could be explored, for example:

- setting a mean-year coal generation target of zero
- setting grid emissions factor targets/pathways
- requiring thermal generation usage to be tied to new renewable build.

> Recommendation B - Under the framework of a national energy strategy, decide how to progress solutions to the dry year problem, when this should happen, and at what cost

[10] *https://www.eeca.govt.nz/our-work/research/research-papers-and-guides/energy-efficiency-first/*

As noted above, efficiency measures to optimise demand will be critical to integrating a higher percentage of intermittent renewable generation while mitigating against dry year risk.

This recommendation could be strengthened to require dry year solutions to be optimised for cost and carbon reduction impact. The current recommendation relies on a national energy strategy putting these in place, however this cannot be guaranteed without more direct guidance.

> Recommendation C - Introduce measures, such as a disclosure regime, to reduce wholesale electricity market uncertainty over Emissions Budgets 1 and 2, to encourage investment in new renewable generation

Encouraging investment in new renewable generation is desirable and necessary. It is not clear whether a disclosure regime can sufficiently address the prevailing uncertainties. A liquid and long term wholesale contracts market or some other minimum price mechanism may be necessary.

> Recommendation D - Assess whether electricity distributors are equipped, resourced and incentivised to innovate and support the adoption on their networks of new technologies, platforms and business models, including the successful integration of EVs

Agree (see above).

This is important, however the Commission should perhaps go further in terms of what needs to happen if the assessment finds distributors are insufficiently equipped to facilitate the transition.

> Recommendation E - Enable more independent generation and distributed generation, especially for remote rural and Māori communities, and ensure access to capital for this purpose

Community, independent and distributed generation has a role to play in the electricity system where they support balancing of the energy trilemma (affordability, security, sustainability). It is important to be clear on what problems the different technologies and interventions are trying to solve (e.g. energy affordability, emission reduction, cold damp housing etc). At a time when very large volumes of capital investment are needed, care needs to be taken to ensure that this capital delivers on the desired outcomes.

Another key consideration is that any rules or regulations introduced should be set so that independent generation is not unnecessarily impeded.

It is also important that distributed generation is provided in a coordinated manner, for example under a demand flexibility framework that ties together the different elements in the system (e.g. solar photovoltaics, home energy management systems, storage, electric vehicles and appliances).

> Recommendation F - Monitor and review to ensure electricity remains affordable and accessible, and measures are in place to keep system costs down, such as demand response management

This recommendation could be interpreted as suggesting price controls. It is important not to conflate system efficiency with affordability. Both are important for the transition, however mechanisms to achieve them are different, and potentially operate in conflict with one another. Preventing electricity from becoming uncompetitive when priced against fossil alternatives is a key element of the transition, and an efficient system will be needed to enable this. However, an efficient system also relies on cost-reflective pricing and effective cost recovery. Where measures are needed to address affordability issues related to poverty, these should be implemented by the appropriate social agencies.

As noted above, energy efficiency, and demand response / flexibility will be critical to enabling a highly renewable electricity system that supports decarbonisation through electrification.

Necessary Action 6: Scale up the provision of low-emission energy sources

> Recommendation A - Developing a plan for the bioeconomy alongside the new national energy strategy, across transport, buildings, energy, waste, land use and industry

EECA agrees there is a need for long-term planning on bio-resources, including prioritisation of use. This is required to optimise the balance between value added and energy security. It is an important aspect of an orderly transition avoiding unnecessary costs. Hence, any plan will need to address trade-offs for using limited bio-resources, particularly between liquid biofuels for transport and biomass for process heat but also for traditional wood product uses. It will also need to balance the costs and benefits of both domestic and imported bio-resources.

The barriers to developing bio-resource supply-chains are unlikely to be uniform across sectors. For example, process heat usage is diffused across multiple sites through the country, while any biofuel production site will likely be concentrated in one region. The coordination challenge of matching process heat demand with bioenergy supply is much less complex than for matching fuel demand with biofuel production which is assumed to have a much larger 'minimum viable quantity required' to enable plants to achieve economies of scale. These dynamics have important implications for supply-chains and distribution of costs.

As noted by the Commission, there are significant opportunities to replace fossil fuels for process heat with biomass. However, many process heat users face significant financial and non-financial barriers to implementing these opportunities, and policy to help overcome these barriers can catalyse deepening and broadening of bio-resource supply-chains. The Government Investment to Decarbonise Industry (GIDI) Fund has funding available for projects to convert process heat boilers to biomass.

We also note there will be challenges meeting fuel demand for some large process heat sites currently using coal – particularly in Southland and Canterbury – from biomass due to concentration of demand and insufficient supply in those regions, and competition from wood processors for this resource.

Recommendation B - Assessing the place that hydrogen has in the new national energy strategy

As noted in our comments on Necessary Action 4 in the transport section, green hydrogen is part of the journey to electrifying the economy. EECA agrees that the role of hydrogen should be considered as part of any electrification strategy (such as through the national energy strategy).

Necessary Action 7: Reduce emissions from process heat

Recommendation A - Urgently introducing regulation to ensure no new coal boilers are installed

EECA agrees there is a need for regulation to ensure no new coal boilers are installed, and that such regulatory action is consistent with New Zealand's climate change objectives. EECA also supports investigating regulatory options to optimise process heat efficiency and accelerate the phase-out of existing coal and other fossil fuelled boilers. Regulations can provide an effective mechanism for reducing 'avoidable' emissions, that is, emissions from fossil fuel usage that could be cost-effectively reduced through efficiency and/or replaced by renewables using existing technologies.

Regulations can complement the ETS and complementary measures, such as the GIDI Fund.

Recommendation B - Introducing measures to help reduce process heat emissions from boilers by 1.4 Mt CO2e over 2018 levels by 2030 and by 2 Mt CO2e by 2035

EECA agrees process heat, along with transport, is one of New Zealand's best emissions reduction opportunities. The Commission's proposed level of process heat emissions reduction is technically viable at marginal abatement costs consistent with the Commission's modelling. In EECA's experience working with large emitting businesses, achieving this level of abatement within the emissions budget timeframes will require government to support industry to overcome the financial and non-financial barriers to rapidly transition from fossil fuels to renewables, alongside a combination of higher emissions prices and/or regulations.

The proposed quantum of process heat emissions reductions is technically feasible and, according to the Ministry for the Environment's marginal abatement cost analysis, can be achieved at costs to the economy that are well within the Commission's assumed marginal abatement cost (not to be confused with future ETS price) of around $140 in 2030 needed to achieve the 2050 target. To the extent that process heat abatement opportunities can be achieved at marginal abatement costs to the economy lower than the Commission's expected 'shadow' carbon price pathway (and in some cases below current ETS prices or at negative abatement costs), these abatement opportunities can be considered 'no regrets' and should therefore be prioritised within the next emissions budget period.

Notwithstanding the fact average marginal abatement costs to the economy of reducing process heat emissions may fall within current or future ETS prices, the actual costs and benefits to individual businesses will reflect the highly site-specific nature of process heat fuel switching projects and vary depending on a range of factors. These include

decisions by other businesses that can increase or decrease the cost of subsequent businesses decarbonising in that region (i.e. first mover advantages or disadvantages). Achieving the Commission's proposed process heat emissions reductions within the emissions budget timeframes will also require process heat users to act quickly: for some businesses, the challenge of finding upfront capital will be compounded by the need to replace existing fossil fuel assets before the end of their useful lives. Businesses often require capital investment projects to have payback periods far shorter than the project lifetime (can be as low as two years in some sectors). Moreover, process heat fuel switching projects can take multiple years to implement, and many large process heat users have multiple sites meaning they will need to carefully plan their own long-term transition pathways.

Even where ETS prices make some process heat abatement opportunities economic, financial barriers are often compounded by technical and other non-financial barriers associated with the complexity of large process heat projects. This is borne out by the not insignificant level of unrealised abatement that is already technically available at or below current ETS prices.

Consistent with EECA's response to Necessary Action 5 ('Maximise the use of electricity as a low-emissions fuel') and Necessary Action 6 ('Scale up the provision of low-emission energy sources'), government support for fuel switching projects can ensure a steady and coordinated increase in demand for electricity and biomass, thereby enabling steady and coordinated investment in infrastructure in the electricity system and biomass supply chains.

The new $69 million GIDI Fund, administered by EECA, provides businesses with access to capital co-funding that, alongside EECA's suite of other energy service programmes (including the Energy Transition Accelerator), are supporting businesses to start transitioning away from fossil fuels to renewables.

Clarity on the phasing out of coal

It would be useful if the Commission's advice relating to recommendations A and B could be a bit clearer and consistent with the preferred pathway for coal, as outlined in other parts of the Commission's advice. For example:

- In table 3.1, the "process heat" line states "Replace coal with biomass and electricity" during the first two budgets (with the third budget focussing on replacement of gas by biomass and electricity).
- In Part 3.8.5 Industry and Heat, figure 3.15 (page 64), the graph shows that almost all coal use disappears by 2035 and just a third of it remains in 2030.
- On page 76, it is stated that "Deep cuts in coal use between 2020 and 2030 (by about ~75% from 2010 levels)" are required to be consistent with a 1.5C trajectory.

The wording of the advice under Necessary Action 7 is not explicit that coal use in process heat should be largely phased out within the next decade. It is important to be clear about this as it has implications for existing consents under the Resource Management Act.

Potential wording to make this recommendation explicit could be "Introducing measures to help reduce process heat emissions from boilers by 1.4 Mt CO2e over 2018 levels by 2030 and by 2 Mt CO2e by 2035. This means the phasing out of coal in process heat use needs to start now and be mostly achieved during the first two budgets."

Recommendation C - Increasing support for identifying and reporting on emissions reduction opportunities in industry, including energy efficiency, process optimisation, and fuel switching

EECA agrees, and we note MBIE's 2019 discussion document 'Accelerating Renewable Energy and Energy Efficiency' included options under section 1 to address information failures, including requiring large energy users to publish Corporate Energy Transition Plans (including reporting emissions annually) and conducting energy audits every four years.

Businesses face a range of information barriers with the result that many existing cost-effective opportunities to improve energy efficiency and reduce emissions (including at or below current ETS prices) remain unrealised. Moreover, requiring businesses to report on emissions reduction opportunities will improve transparency and data inputs to guide policy and long-term transition planning.

EECA has been increasingly active in this space in the past few years, with the roll out of our Energy Transition Accelerator programme, which offers bespoke technical support to large emitters to develop long-term transition plans. EECA also offers a range of support to help large energy users and other businesses overcome information barriers to improving energy efficiency and identifying fuel switching opportunities, including energy audits, feasibility studies, support for energy graduates, and technology demonstration funding.

We would like to highlight that support is only one part of the equation, and not necessarily the main barrier to wider and faster uptake. Other barriers that need to be addressed include:

- EECA's mandate is limited to energy related emissions, while businesses logically want to assess their emissions as a whole.
- While some businesses are thinking about the transition and are willing to work with and be supported by EECA, others lack the incentives to address this long-term challenge.
- Triggering a review of existing consents and mandating transition plans would create the required incentive

Based on the above points, we suggest tweaking the recommendation to "Increasing identification and reporting on emissions reduction opportunities in industry, including energy efficiency, process optimisation, and fuel switching" opportunities in industry, including energy efficiency, process optimisation, and fuel switching"

> Recommendation D - Helping people to access capital to reduce barriers to the uptake of technology or infrastructure upgrades such as boiler conversions, energy efficiency technologies, and electricity network upgrades.

As noted above there is technical potential to accelerate emissions reduction consistent with the Commission's draft process heat emissions reduction targets. EECA's GIDI Fund is an existing mechanism for achieving this.

Any increased government funding should be complementary to the ETS, and carefully considered alongside both regulatory and non-regulatory options.

EECA is experienced in working with industry to address barriers to uptake of technology, energy efficiency and renewable energy. While some can struggle to access capital (because they are over-indebted for example), it is not our experience that access to capital is the main issue.

Overall, in a context of low regulatory incentives, the challenge is mostly about improving the return on investment of the transition projects so they can be attractive enough for decision makers and become a priority for their organisation. The Commission may want to reflect this in its advice.

Necessary Action 8: Support innovation to reduce emissions from industrial processes

> Recommendation A - Developing a long-term strategy for the future of hard-to-abate industries, including iron, steel making, cement and lime production and petrochemical production. This strategy should be developed alongside the national energy strategy, future Economic Plans and strategies for an equitable transition (see time-critical necessary actions 1 and 3).

> Recommendation B - Based on the outcome of the strategy, investigating whether bespoke solutions requiring research and development specific to Aotearoa will be required.

EECA agrees with the intent to support innovation to reduce emissions from industrial processes, however, this does not necessarily extend to specifically supporting innovation in the hard-to-abate industries.

In New Zealand, hard-to-abate industrial processes consist of "one-plant sectors". Most innovation in these globalised sectors are likely to come from abroad, especially to reduce emissions, which involves significant rethinking of these processes (hence the name "hard-to-abate").

Therefore, the required investments would be very expensive for a small country alone.

In addition, these plants are mostly controlled by international owners, which can decide to move their plant at will. So there is a real risk at investing significant amount of taxpayer money in these assets.

However, there is a need to support a wider adoption of innovations reducing emissions in a wide range of sectors of New Zealand economy.

EECA published an international technology scan[11] listing some of the innovation which wider use would help the transition, with a range of co-benefits.

[11] *https://genless.govt.nz/assets/Business-Resources/International-technology-scan.pdf*

Buildings

Necessary Action 9: Increase energy efficiency in buildings

EECA strongly supports measures to increase the energy efficiency of buildings, and also notes the significant co-benefits of improved buildings in terms of health and wellbeing.

The Commission's Evidence Report Chapter 9: Which path could we take? includes some assumed levels of energy efficiency and energy intensity improvement. EECA's view on these assumptions is included below:

- Residential / existing: The Commission assumes that existing homes' energy intensity improves by 6% by 2035. We feel that this level of improvement is eminently achievable, particularly if you consider that this level of improvement would be achieved with a conversion to heat pump water heating alone.
- Residential / new build: The Commission assumes that by 2035, new builds are 35% more energy efficient compared to today's performance. While it is unclear if the Commission is comparing to today's new builds or today's average house, either way it should be achievable. This seems to align with the timeline of the "final step" of the Ministry of Business, Innovation and Employment's (MBIE) Building for Climate Change programme in terms of timeline and probably energy use, which we support.
- Commercial: The Commission assumes a 30% improvement in commercial and public buildings' energy intensity is possible by 2035 compared to today's performance. Based on experience with the NABERSNZ building energy efficiency rating system, we feel that this level of improvement is achievable.

Recommendation A - Continuing to improve energy efficiency standards for all buildings, new and existing stock, through measures like improving insulation requirements. Expand assistance which targets low-income households

The Warmer Kiwi Homes programme, administered by EECA and targeting low-income households, supports insulation and clean, efficient heating to improve the energy efficiency of homes. Support for this programme should continue until all target homes have received retrofits.

EECA is also strongly supportive of the Building for Climate Change programme, administered by MBIE, which will initially focus on improved standards for new builds.

Recommendation B - Introducing mandatory measures to improve the operational energy performance of commercial and public buildings

EECA continues to support the use of the NABERSNZ tool, a system for rating the energy efficiency of office buildings. There are already a number of public and private sector organisation that use NABERSNZ as a straightforward means of helping to make their building more efficient.

The use of this tool could be expanded as a means of delivering on the Commission's budget of a 30% improvement in commercial and public buildings' energy intensity by 2035. For example, the tool could be used to drive energy efficiency improvements in apartment buildings, shopping centres, data centres, hotels and public hospitals.

> Recommendation C - Setting a date by when no new natural gas connections are permitted, and where feasible, all new or replacement heating systems installed are electric or bioenergy. This should be no later than 2025 and earlier if possible

EECA strongly endorses a strategic view being taken of New Zealand's future energy systems. A number of overseas jurisdictions are moving to 'all-electric' homes and commercial buildings as a low-cost decarbonisation pathway, and to avoid stranded assets in gas distribution infrastructure. The national energy strategy should therefore consider the best timing of a potential ban on new gas connections, and the role of biofuels. However, any such timeframe for a ban on new gas connections must strike a balance between decarbonisation, energy security, and replacement energy sources affordability.

Necessary action 10 – Reduce emissions from urban form

EECA strongly endorses the Commission's messaging about the importance of understanding the emission impacts of urban form and the need for coordinated decision-making across local and central government.

We recognise that the Commission was unable to go into much detail on the issues and opportunities in this area. We agree that the interrelationship between land use, transport and infrastructure justifies significant attention from Government and that emission reduction needs to be prioritised in decision making.

Consultation question 19: Multisector strategy

Do you support the package of recommendations and actions to create a multisector strategy? Is there anything we should change, and why?

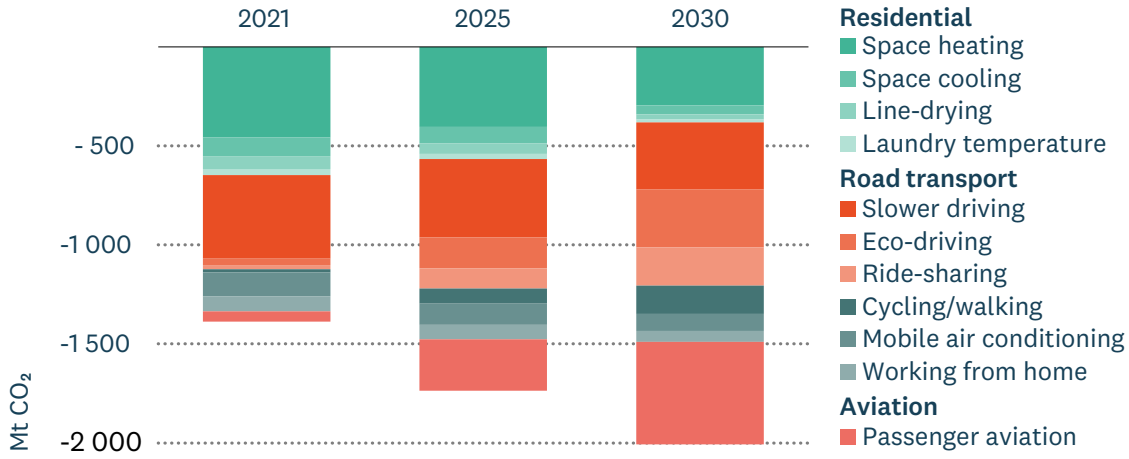
General comments on the multi-sector approach

A combination of policies and market interventions will be necessary the meet the emissions targets. Although the introduction to chapter 6 accurately describes the types of measures needed to reach these targets, the multisector section is quite limited in what it considers. The Commission's advice does not refer to areas such as innovation, research, and training, which all seem to be critical multi-sector aspects of delivering the emissions budgets, but are not apparent in the Commission's multisector strategy. We are interested to understand if this is based on the Commission's perception of priority or need.

Necessary action 16 - Support behaviour change

EECA agrees that behaviour change is a key component of any plan to escape carbon lock-in. We strongly support the proposal that behaviour change at organisational and business level, as well as an individual level, is critical to achieving net zero. IEA modelling in the World Energy Outlook 2020 highlighted the critical role of behaviour change in reaching New Zealand's net-zero target, and the scale of the behaviour change activity that is needed.

Impact of behaviour changes on CO_2 emissions in the NZE2050



Source: IEA, World Energy Outlook 2020

EECA advises caution, however, against limiting the discussion to specific, small-scale changes. Ad-hoc behaviour change efforts risk creating only short-lived impact – we must pursue deep and long-term systemic change to lock-in behaviour change at the scale required. Identifying the role of government in driving this systemic change will be a key challenge.

Since our formation in 2000, EECA has successfully run programmes promoting energy and climate-related behaviour change, most recently through the Gen Less public engagement platform.

Gen Less is aimed at influencing energy-related purchasing, consumption and other behavioural choices at the individual level. It has been informed by ongoing market research and monitoring of individuals' and businesses' values and actions related to climate change. Noting the importance of building upon what is already in place, we would reiterate the opportunity to harness the Gen Less platform as a channel for increased behaviour change efforts by government (see our comments on consultation question 9 above).

EECA has a strategic process underway to develop better ways of influencing values and addressing the value-action gap through effective communications and behaviour change – our Hearts and Minds strategy. By combining bottom up individual behaviour change with top down systemic influencing actions, the Hearts and Minds strategy aims to create fertile ground for systemic change.

EECA also intends to measure the gap between what people and businesses will need to do in a net-zero world, and what they are doing today. This will inform our progress towards our objectives and the evolution from year to year.

We agree that meaningful behaviour change action will require a collaborative, focused and multi-agency approach, but suggest dedicated funding with a discrete structure is necessary to convert collaboration into action.

Discussion between government agencies with relevant activities around public engagement (and behaviour change) on climate change has already begun in the context of the Government's Emissions Reduction Plan. Given coordination groups already exist, next steps need to move current activities from simple information sharing to meaningful coordinated action.

There is precedent for creating a distinct team focused on behaviour change internationally. Dedicated agencies have been established at the highest level, as with Australia's Behavioural Economics Team, and dedicated teams have been nested within a ministry or regulatory agency, such as in Japan and the UK.

It is worth noting that EECA currently occupies analogous role to that of Waka Kotahi New Zealand Transport Agency, performing our role as the operations arm of the energy system, implementing MBIE's energy policy function. With additional resourcing, EECA is well placed to lead delivery of future cross government coordinated behaviour change activities in climate change.

We agree that piloting, testing and evaluation of behavioural interventions will be a key activity.

While continuous monitoring can shed light on the long-term impacts of behavioural interventions, evaluation remains the responsibility of individual agencies, which generally lack resource to monitor these effects over long-enough time periods. A stronger direction from central government requiring periodic, rigorous and systematic policy and programme evaluation is needed to support this in practice.

There is an opportunity to support the continuous improvement of climate change related interventions through improved coordination and knowledge sharing among groups conducting research and evaluation. This function could be delivered by a behavioural insights body or by another centralised monitoring and evaluation team.

Time-critical necessary action 6 - Align investments with climate outcomes

EECA strongly agrees with this recommendation and the priority given to it.

We would like to offer some comment and questions that may assist the commission in clarifying its advice for maximum impact.

> Recommendation A - Immediately start to factor target-consistent long-term abatement cost values into policy and investment analysis in central government. These values should be informed by the Commission's analysis which suggests values of at least $140 per tonne by 2030 and $250 by 2050 in real prices

EECA notes that Treasury has recently published shadow-pricing guidance for use in government investment decision-making[12]. Establishing appropriate shadow carbon prices is a complex task with a wide range of uncertainty. It would be helpful if the Commission could clarify the recommendation in terms of the process it

[12] *Appendix 4 of the CBAx User Tool Guidance: https://www.treasury.govt.nz/sites/default/files/2020-12/cbax-guide-dec20.pdf*

recommends be used to establish 'target-consistent prices' (a term which will be a key component of implementing this recommendation). We agree that the Commission's own modelling will be a useful resource, however there are other potential sources, such as the Carbon Pricing Leadership Coalition's High-Level Commission on Carbon Pricing and Competitiveness, that may give different or more nuanced results.

Recommendation B - Encourage local government and the private sector to also use these values in policy and investment analysis

EECA supports this recommendation. The use of consistent long-term abatement cost values by all levels of government and the private sector would help future-proof investments.

Recommendation C - Ensure that economic stimulus to support post-COVID-19 recovery helps to bring forward the transformational investment that needs to happen anyway to reach our joint climate and economic goals

EECA agrees with this recommendation and has made resources available to help out with this where appropriate (for example feeding in to consideration of Infrastructure Reference Group projects and the Government Investment to Decarbonise Industry (GIDI) Fund).

Recommendation D - Investigate and develop a plan for potential incentives for businesses to retire emissions intensive assets early

EECA agrees that some additional incentives may need to be made available to businesses if some assets are to be retired early. However, we would urge caution in developing a specific plan for this component. Any scheme will have the risk of being manipulated and the asset retirement barrier will need to be addressed in the wider context of barriers. One role for voluntary carbon markets could be to bring forward replacement of high emissions assets, thus addressing the 'time gap' problem.

Recommendation F - Investigate and develop plans to mobilise private sector finance for low emissions and climate-resilient investments

EECA is exploring options around the growing demand for ways to accelerate climate action and address climate related risk in the private sector. Driven by risk management, new participants are increasingly channelling capital in directions that contribute to climate mitigation and adaption. We support this action and we would like to highlight the potential of the voluntary carbon market (VCM) as a vehicle for private sector finance investments. Today, the existing VCM is niche and could be scaled up significantly.

EECA has been working with Motu and a wide range of stakeholders to address this challenge using the voluntary carbon market opportunity arising from the beginning of the Paris Agreement period.

Motu and EECA will soon publish a summary report outlining the problems, the opportunities and the current thinking in term of solutions. This report also addresses the waterbed effects[13] with the ETS.

Voluntary mitigation can help to bridge current gaps in mitigation ambition, financing, and speed that could undermine the long-term goals of the Paris Agreement.

Through our work, EECA identified a convergence of trends, barriers and opportunities and concluded that the VCM has the potential to be a vehicle for private finance to help unlock emissions reduction by funding domestic energy transition.

There are domestic emission reduction opportunities in New Zealand that are cost effective compared to alternatives such as forestry or offshore credits. These opportunities (energy efficiency and renewable energy projects) are not responsive to energy (and therefore carbon) prices because they face non-price barriers or the price signal is not yet sufficient to trigger investments.

As demonstrated with the GIDI Fund, an injection of capital could unlock some of these opportunities by improving

[13] *The 'waterbed effect' describes a situation where action taken by one party (pushing down) is cancelled out by increases from other parties due to the reduced pressure under the overall unit cap.*

the return on investment of the projects. The VCM could be a source of private funding for these projects.

Additionally, there is an incentive mismatch between businesses with cost-effective opportunities but low incentives/willingness to act and businesses with willingness to transition but few opportunities (overly expensive or not technically mature). Enabling these businesses to split the value and the claims for these projects would enable a shift from the zero-sum game status quo to a collaborative environment.

Shortcomings of the Kyoto period offsetting and carbon neutral approach have resulted in relatively low uptake and low trust in this market. Fixing the accounting issue by increasing transparency is key to increase trust and fix the behaviour issues related to past and current offsetting practices.

Allowing the VCM to fund domestic projects could also improve trust by bringing the outcomes of the spending closer to New Zealanders.

Time Critical necessary action 7 - Driving low emissions choices through the NZ ETS

Recommendation A - In the next annual update to NZ ETS settings:

i. Align unit volumes with emissions budgets, taking into account the need to reduce the NZU stockpile
ii. Increase the cost containment reserve trigger price to $70 as soon as practical and then every year by at least 10% plus inflation

EECA agrees with the general strengthening of ETS settings and the intent behind these.

The specific wording in the advice could potentially be enhanced and clarified.

Specifically:

Recommendation A(i) - This recommendation could be more specific about the expected change in unit auction volumes. The current recommendation specifies a principle for adjustment (i.e. alignment with budgets) but stops short of identifying the quantum of adjustment the Commission expects to see. This means that if government adjusts the auction volumes at all, this could be claimed to be complying with this recommendation, when actually it is not a sufficient adjustment. A specific range of auction volumes "i.e. Commission analysis suggests that the appropriate range of auction volumes is X to Y million units per year" would be a more effective recommendation.

Recommendation A (i) and (ii) - A fundamental principle of the ETS is that it makes use of a market mechanism to determine the price. While having well signalled price corridors is a useful feature of the ETS, as it provided a degree of confidence about price levels, care should be taken that the ETS is not over-constrained.

The recommendations are set at specific prices, with specific escalation rates. Given the timeframe, the starting price is unlikely to be problematic, however the escalation rates may need to be revisited over time. A more useful approach would be to reference the price setting to ETS market outcomes from a preceding period. For example, "The auction reserve trigger price will be set at the average of the previous 3 months published ETS price".

The justifying comment "these changes are needed because maintaining current settings will lead to failure to meet emissions budgets" could be rephrased for clarity and accuracy. At present it implies a direct link between the ETS settings and New Zealand's emissions. While the ETS is a key tool in managing emissions, it is neither fully effective, nor the only measure being applied to the emissions problem.

Recommendation B - Amend the NZ ETS so that it contributes, as part of a package of policies (see time-critical necessary action 5), to delivering the amount of afforestation aligned with our advice on the proportion of emissions reductions and removals, consistent with budget recommendation 2

This recommendation would benefit from improved clarity and further explanation. It implies some sort of differentiation between forest types, but it is not easy to determine how this would work in practice. While the detail will be developed in consultation with affected parties, a more tangible strawperson example would provide affected parties with a better basis for discussion.

Recommendation C - Establish a sound market governance regime for the NZ ETS as soon as possible to mitigate risks to market function, as some of these risks are potentially catastrophic for the scheme's effectiveness. This work should be advanced through an interagency team including MBIE for its financial markets expertise

Our understanding is that the intent of this recommendation is for the Government to speed up implementation of the market governance work programme already identified. The progress indicator refers to 'the most significant risks'

however it is not clear from the advice what the Commission believes these to be.

Necessary action 19 - Continued ETS improvements

Recommendation A - Developing options and implementing a plan for recycling some or all of the proceeds from NZ ETS unit auctions into emissions reductions, adaptation, equitable transitions and meeting international climate change obligations

Recycling of ETS revenue is one among many options to increase government funding for emissions reductions, adaptation, equitable transitions and meeting international climate change obligations. We strongly support the need to investigate this opportunity, alongside the range of other potential funding mechanisms. The benefit of hypothecating ETS revenues is it could make the increasing cost implications of the ETS more palatable to society as they see a direct correlation between the cost to consumers of an ETS and the direct investment from ETS revenues recycled into emission reduction efforts. Much in the same way the dedicated National Land Transport Fund has sought to do this with fuel excise duty and road user charges. However, direct hypothecation may also have downsides, in terms of being unable to provide certainty of forward funding.

Recommendation B - Undertaking a first principles review of industrial allocation policy

EECA supports a first-principles review of industrial allocation policy to ensure it is fit for purpose.

Recommendation C - Continuing to phase out industrial allocation

The Government has put in place a policy to phase out industrial allocation slowly and over a long timeframe. It would be useful to understand if the Commission recommends maintaining this policy or accelerating the phase-out of industrial allocation to be consistent with targets and budgets and ensuring a fair and equitable burden of action across the economy.

Recommendation D - Exploring alternative policy instruments that could address the risk of emissions leakage

Emissions leakage can occur from all sectors of the economy. It would be useful if the Commission can clarify whether this recommendation relates to industrial allocation to Emission Intensive and Trade Exposed (EITE) sectors, or more broadly (i.e. including agriculture). If the recommendation does not include primary production then perhaps the Commission could consider merging recommendation b, c, and d into a single recommendation that says “Adjust the industrial allocation regime and related policies to be consistent with targets and budgets while managing risks of carbon leakage”.

Recommendation E - Providing more information to reduce uncertainty about adjustments to NZ ETS settings, particularly how it intends to manage unit volumes in light of the split-gas 2050 target

Reducing uncertainty in the ETS settings is important for encouraging long-term investment activity in emissions reduction. However, the need to reduce uncertainty is somewhat inconsistent with discussions in the advice about managing ‘the waterbed effect’ (Evidence report Chapter 16, page 8), which suggests fluidly adjusting auction volumes to account for actual emissions reductions both inside and outside the ETS. It would be helpful if the Commission could clarify how these competing objectives would best be managed.

Recommendation F - Clarifying the role and avenues for voluntary mitigation in Aotearoa

We do not share the Commission’s view that, providing an adjustment, when a NZU is cancelled, it is equivalent to removing a tonne of emissions from the atmosphere. This theoretical reasoning does not seem to take into account the significant amount of NZUs stockpiled by some businesses, most of which were received for free as a result of over allocation.

We do support the general recommendation, although it would be helpful if the Commission could provide a clearer position. This could be used as a starting point for inter-agency discussion on the matter.

As mentioned in Recommendation F of Time Critical Necessary Action 7, EECA has been working on this topic with

Motu and a wide range of stakeholders.

We think that the voluntary carbon market (VCM) has a key role to play to unlock domestic transition projects facing non-price barriers, or for which the price signal is not yet sufficient to trigger investments when the opportunities arise (e.g. asset replacement).

From the joint work with Motu and the workshops participants, we suggest potential solutions, including:

a. A straw proposal for a two-track system intended to boost voluntary mitigation at scale with benefits for both organisations and government.

Organisations' own emissions

Requires organisations to set internal mitigation targets (scopes 1,2 and 3) in line with the temperature goal of the Paris Agreement

Track 1: Carbon Horizon

- Bridges the gap to meet Paris NDCs
- Provides certification or carbon credits for financing or otherwise supporting external GHG mitigation beyond government requirements
- Focuses on cooperation with shared claims to mitigation
- Enables Carbon Contribution, Carbon Neutral, or Carbon Positive claim with Horizon status

Track 2: Carbon Frontier

- Supports global mitigation beyond Paris NDCs
- Provides carbon credits with corresponding adjustments for financing external GHG mitigation beyond government requirements
- Focuses on sinlge claims to mitigation
- Enables a Carbon Neutral or Carbon Positive claim with Frontier status

In the past, voluntary mitigation typically focused on generating and trading VCCs eligible for carbon-neutral offsetting claims. While retaining that option with new features to make it Paris-compatible, this proposal expands the scope of eligible voluntary mitigation to include recognition for more diverse forms of cooperation with shared gains and greater valuation of environmental, social, cultural, and economic co-benefits. It is scalable for the global transition toward net-zero emissions.

b. An alternative, "dashboard" approach to carbon accountability for organisations, increasing transparency and allowing shared claims to favour collaboration.
With this approach, an organisation's performance would be distinct from helping others, and the gross emissions would be distinct from removals. It would result in a clearer risk exposure for investors and shareholders.

		Pillar A Reducing my GHG emissions	**Pillar B** Reducing others' emissions	**Pillar C** Developing carbon sinks
In my value chain	In my operations	Direct emissions (scope 1)	-	Direct removals
	Upstream and downstream	Indirect emissions (scope 2+3)	Emissions avoided by my products and services	Indirect removals
Outside of my value chain		-	Emissions avoided through the financing of reduction projects	Removals through the financing of absorption projects

An example of such approach has been developed by the Net Zero Initiative:

Adoption of such reporting would unlock better outcomes such as:

- Allowing an increase of gross emissions from a company producing goods or services that unlock greater emissions reductions for their customers (such as energy providers).
- For the state sector, it would highlight investments in domestic reduction projects as a valid option compared to purchasing offshore credits to cancel.