Joint submission of the zero waste community on the **Climate Change Commission's** 2021 Draft Advice for Consultation

Submitted on 28 March 2021, jointly by:

- **Zero Waste Network Aotearoa**
- **The Rubbish Trip**
- **Sustainability Trust**
- **Aotearoa Plastic Pollution Alliance**
- **Para Kore**
- **New Zealand Product Stewardship Council**
- **Wastebusters**
- **Takeaway Throwaways**
- **The ReCreators Ltd/Re-Creators Charitable Trust**
- **Xtreme Zero Waste**
- **Grey Lynn 2030 Waste Away**
- **Littlefoot**
- **Our Seas Our Future**

At the end of this document, in **Appendix A**, we have provided a list of key resources that we have relied upon to draft this submission, and which we think the Commission will find useful too.

Thank you for the opportunity to share our thoughts and experience in relation to your draft advice.

We so appreciate all the hard work you have put in so far. We make our submission with the intention of supporting you all to get the best possible advice package into our Government's hands.

We are grateful for the approach the Commission is taking to engage with New Zealanders from all walks of life. We have enjoyed the opportunities we have had to discuss your work along the way. Your open and inclusive approach is helping to bring us all together.

We are keen to end our contribution to climate change as soon as possible.

Your draft advice document challenged us to think hard about how our sector can contribute and we have learned a lot in the process. We have had some great conversations, come across some amazing initiatives around the world and got some ideas about what we need to do next.

You have the power to make our job a lot easier by recommending that the Government put a comprehensive regulatory framework in place to enable the use of zero waste strategies to make the shift to a circular economy.

We encourage you to go for it!

We are happy to meet with you to discuss any aspect of our submission if you consider that useful.

Contact people

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Our One Very Big Thing

Summary and Recommendation for a new Time Critical Necessary Action

Introduction

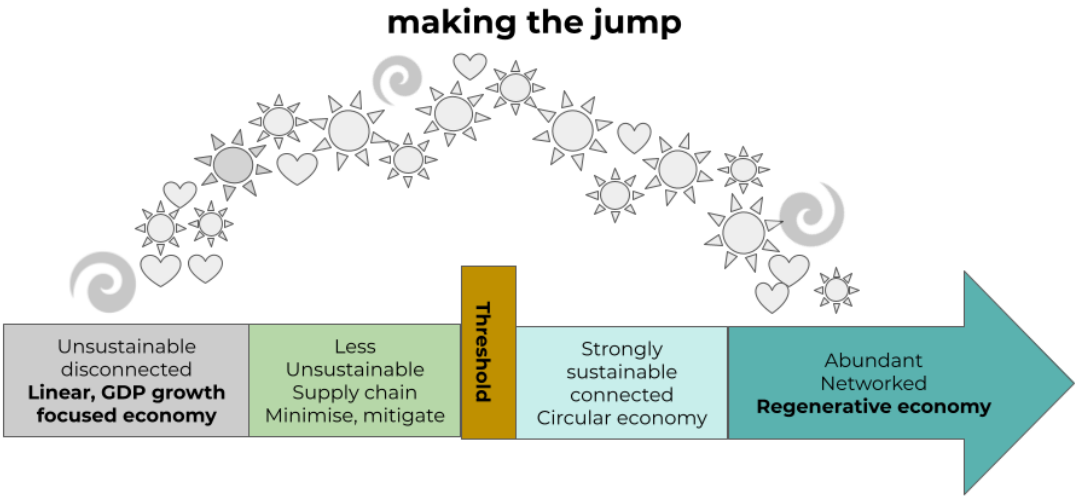
We can make a just transition from a throwaway culture to a zero waste, zero carbon circular economy by transforming our relationship with waste. The good news is that when we reduce waste, we reduce emissions. The evidence shows that we can dramatically reduce our emissions by using resources more efficiently.

We already have the tools we need to get started. By implementing common zero waste strategies we can bring the circular economy to life and adapt to climate change at the same time. The waste hierarchy, which prioritises prevention, reduction and reuse, can be used as a 'climate lens' to help guide decisions and investment. Social procurement will put the money in the right hands.

The Commission's general waste advice takes us in the right direction but the recommendations need to be more specific, holistic, and ambitious to harness the power that using resources more efficiently has to end our contribution to climate change.

Lately, Aotearoa has moved on from squabbling about whether we are going to do something about climate change, to talking about what we are going to do and how we are going to do it. Think Global, Act Local is more than a catchphrase for the members of our Zero Waste Network. Every day we all put our hearts, our souls and our bodies on the line and do what we can to make our communities and our local economies more healthy and resilient.

We are in it for the long haul. For us, reducing waste and reducing emissions are part of the same story. They are the springboard that will enable us to make the jump to a regenerative economy.



Adapted from: Strong Sustainability for New Zealand 2009 *Sustainable Aotearoa New Zealand NZ*

(Zero Waste Network Aotearoa NZ stock image)

We want to end our contribution to climate change. ASAP
Zero Waste Network members have been using ‘reduce, reuse, recycle’ strategies to help build a circular economy since 1989. Community Enterprises like Xtreme Zero Waste in Whāingaroa Raglan already divert 75% of the materials flowing through their town using readily available tools and systems. They are on a mission to create a world without waste. They use waste reduction as a vehicle to reduce emissions and create wellbeing.

Communities like these are ambitious. They leverage every opportunity and are looking beyond the circular economy they are already building to the regenerative, abundant world they envision for our future. Xtreme Zero Waste’s activities directly contribute to 13 of the 17 Sustainable Development Goals. Through their local, national and international partnerships they enable progress on the other 4.

Whāingaroa Raglan is regarded as a global leader in community transformation. They have won a stack of awards for using zero waste strategies to generate wellbeing and long term positive outcomes for their place and their people.

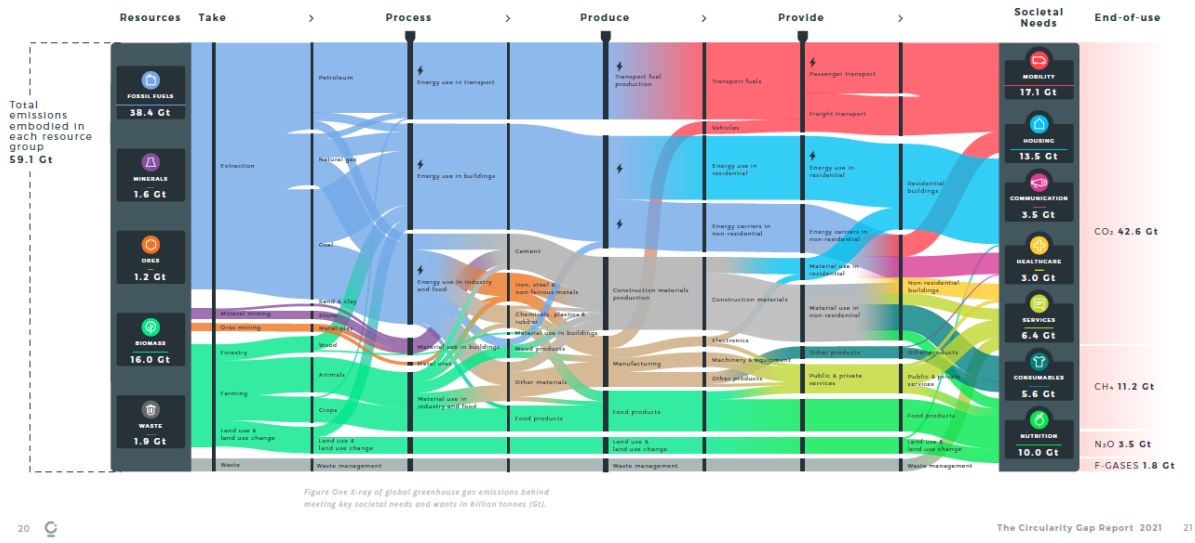
The problem is that our system doesn’t support them...
...or any of the other 100+ members in our network. They achieve what they do despite the barriers they face. Our communities and the organisations and enterprises that lie at their heart need better support. The value of decentralisation to enable bottom up innovation is being recognised as we shift into more uncertain times.[1]

Government could provide this by committing to the same mission we are on so we can work together to deliver a zero waste, zero carbon Aotearoa by 2050. We ask that the Commission steps up, digests our submission and adapts its recommendations to ensure that making the shift to a circular economy is at the heart of its advice instead of in shadows on the periphery.

Organics are not the only gig in town
The Commission's advice around ‘waste’ focuses on reducing methane emissions from organics that end up in landfills. The label ‘organics’ does span a huge range: food waste, greenwaste, fibre: paper, card, textiles, timber, composite boards and mixed materials e.g. Tetra Pak and plastic laminated composite board, single-use packaging for consumer goods and takeaways, sewage sludge, farm manure/effluent, dead animals/livestock and byproducts from food processing.

However organics are only one piece of the production and consumption puzzle. A huge range of inorganic materials flow through our systems too. All of these are organic and inorganic resources get combined with energy to create the products and services we value. This ‘X-ray’ of the global economy produced by Circle Economy in the 2021 Circularity Gap Report shows how.[2]

[1] Karacaoglu, G (2021) *Love You: Public Policy for Intergenerational Wellbeing* (Wellington: Tuwhiri Press), p.87.
[2] Haigh, L., de Wit, M., von Daniels, C., Colloricchio, A. and Hoogzaad, J. (2021) *The Circularity Gap Report* (Amsterdam: Circle Economy), https://www.circularity-gap.world/2021.



There are three main types of emissions generated from the 'waste' our economy creates as a side effect of production and consumption systems.

1. Emissions from landfill - biogenic methane from organics stored in landfills
2. Consumption-based emissions - greenhouse gases generated across the product lifecycle
3. F-Gases - HFCs escaping to the atmosphere from products eg. air conditioning units

Biogenic methane emissions show up in production-based emissions accounting. To get a clear picture of the relationship between our consumption and our emissions profile we also need to monitor the long-lived GHG consumption-based emissions generated upstream from extraction, production, transport retail, use and resource recovery of packaging and all our other stuff.

This brings the emissions implications of inorganic materials into the light so they can be factored into decision making, policy and monitoring activity. It is already possible to measure consumption emissions using a carbon footprinting tool. Scotland does this at a national scale as part of its commitment to shift to zero carbon by 2045.[3] StatsNZ produced its first set of consumption based accounts in 2020.

Consumption side interventions reduce emissions

In 2009 WRAP UK research found that consumption efficiency strategies had the potential to achieve far greater emissions reductions than production efficiency strategies.[4] Supply/production side strategies like lean production (approx 300 MT CO_2e), material substitution, waste reduction and waste recycling definitely helped to reduce emissions.

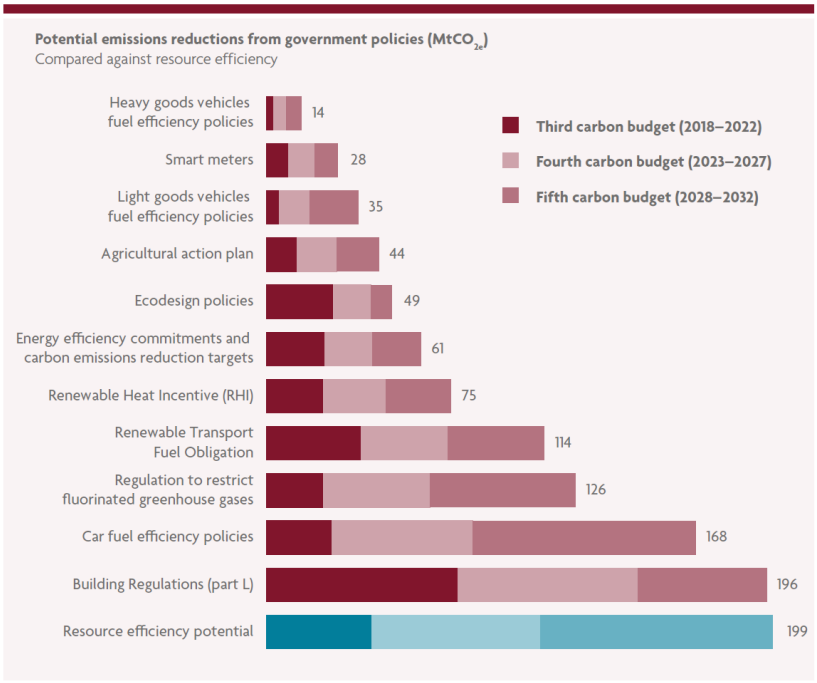
[3] Nwabufo, Chidubem and Warmington, Jamie (2020). 'Measuring Scotland's progress towards a circular economy to help combat the climate emergency. Results from a preliminary scoping study reviewing key indicators.' Edinburgh: Zero Waste Scotland. Retrieved from https://www.zerowastescotland.org.uk/sites/default/files/Branded%20Report%20MetricsV1.pdf.

[4] Hill, Maddox, Mahon. (Feb 2020) 'How can a Circular Economy help us meet net zero?' *Environmental Scientist The World Wakes Up to Waste*, p. 22. Retrieved from: https://www.the-ies.org/resources/world-wakes-waste.

However, this was dwarfed by the potential of demand/consumption side strategies. Common zero waste strategies like the ones below could make a substantial dent in our GHG emissions profile.

- life time optimisation - making things last longer (approx 800MT CO_2e)
- shifting to a restorative circular economy - reduce, reuse, recycle and compost
- changing the way we consume - goods supplied as a service - e.g. car share
- reducing food waste at source

Recent comparisons of the relative emissions reductions potential of a range of Government policies for the UK's third, fourth and fifth carbon budgets, shows resource efficiency coming out on top. Using zero waste strategies to bring the circular economy to life would unlock these kinds of resource efficiency reductions.



▲ **Figure 4. Resource efficiency has great potential to cut UK emissions (in million tonnes of CO_2e). (© Green Alliance)[9]**

Circular resource flows

The concept of a circular economy is a useful reframe of an old idea. 'Cradle to Cradle',[5] which considered resource use in industrialised economies, made the distinction between two types of material flows. One being organic/biological materials that can go safely back around into biological systems. The other being inorganic/technical materials that can be fed back into industrial systems.

The writers cautioned against the creation of 'monstrous hybrids' that are created by combining material types which makes it very difficult to separate them back out again. Short life multi-material packaging or building materials are problematic for this reason. They saw keeping materials in closed loop systems as a critical resource efficiency strategy.

The circular economy is being championed globally by the Ellen McArthur Foundation as a strategy for dealing with 'wicked' problems flowing from climate change and resource

[5] https://en.wikipedia.org/wiki/Cradle_to_Cradle:_Remaking_the_Way_We_Make_Things

consumption. The basic idea is that we need to design out waste and pollution, keep products and materials in circulation for longer and regenerate natural systems. This concept is a neat fit with the waste hierarchy which is used to prioritise action, it is good to recycle, better to reuse and best not to make unnecessary items in the first place.

The circular economy measures the circularity of the global economy and publishes a circularity index.[6] The aim of this work is to 'combine the twin agendas of circular economy and climate mitigation' in a way that takes us well beyond current NDC pledges. They calculate that our current economy is 8.6% circular. They estimate that we could stay within 1.5 degrees of warming by doubling circularity to get us to 17% by 2032.

Their analysis shows that material handling and use account for 70% of GHG emissions. They point to the urgent need to move beyond a narrow energy focus to apply circular strategies where materials and emissions intersect. By their calculations this would enable us to reduce GHG emissions 39% and virgin resource use by 28% to help keep our impacts within planetary boundaries.

Other countries are showing us the way

Scotland is a country with a similar population but a slightly different emissions profile to New Zealand. 80% of Scotland's carbon footprint is generated through production, consumption and waste of goods, services and materials. The Scottish Government believes a circular economy is the key to reducing both waste and emissions.

Their landmark 2016 strategy, *Making Things Last*,[7] highlighted the economic, community and environmental benefits of making the shift. Scotland uses two data sets in tandem to monitor progress on shifting to a circular economy and addressing climate change.

1. A detailed national material flows account - first published in 2020
2. Scotland's carbon footprint - existing Scottish Government data set showing onshore and offshore carbon impact of consumption and production.[8]

Commission's advice overlooks a critical opportunity

We think the Commission has overlooked a critical opportunity to reduce emissions across the board, engage people from all walks of life and build resilience at the local level. Waste is a doorway that is already unlocked. People are confronted by waste problems every day. Is it recyclable? Reusable cup or single use disposable cup? Mass produced fast fashion or quality second hand retro style?

Waste is front of mind because we deal with products and packaging all day, every day. We have come a long way in the 30 years since we first started talking about our waste problems. Households, businesses and communities are all using zero waste strategies like reuse, repair, composting and recycling to keep products and materials in circulation for longer. And to avoid making or buying unnecessary goods or packaging in the first place.

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[6] Haigh, L., de Wit, M., von Daniels, C., Colloricchio, A. and Hoogzaad, J. (2021) *The Circularity Gap Report* (Amsterdam: Circle Economy), https://www.circularity-gap.world/2021.

[7] The Scottish Government (2016) *Making Things Last: A circular economy strategy for Scotland* (Edinburgh: The Scottish Government). Retrieved from https://circulareconomy.europa.eu/platform/sites/default/files/making_things_last.pdf.

[8] See various resources on the Zero Waste Scotland website: "Scotland's Path to Net Zero" at https://www.zerowastescotland.org.uk/netzeroplan; "What is the Carbon Metric?" at https://www.zerowastescotland.org.uk/our-work/what-carbon-metric; and "Carbon Metric Publications" https://www.zerowastescotland.org.uk/our-work/carbon-metric-publications. See also ACR+ "More Circularity, Less Carbon". Retrieved from https://www.acrplus.org/en/morecircularitylesscarbon.

The Colmar Brunton Better Futures 2021 report noted a growing commitment to sustainability, however 49% of participants think climate change problems are in the future. There are three 'waste' issues in the top 10 concerns: #6 build up of plastic in the environment, #7 not enough waste is recycled and #10 overpackaging, non recyclable packaging and landfill.[9]

Waste issues are tangible, real time intrusions into our wellbeing bubble. Big global problems like climate change are harder to get a handle on. It's easy to deflect away and push them into the "I'll worry about that one day" box.

People are primed - they want to do more
Using zero waste strategies to prevent waste and keep things going around has a handy co-benefit. It reduces emissions at the same time. People and organisations getting started with sustainability often begin by sorting out their waste piles. It is an easy entry point with a fast feedback loop. We think this can be leveraged to engage people in taking action to reduce their emissions.

When we explain to people that by reducing, reusing and recycling they are reducing GHG emissions they start to smile. They begin to see themselves as someone who is already taking action on climate change. They realise that it's the little things they do every day that will make the difference in the long run. They don't have to wait until they can afford an electric vehicle to start making a difference.

Key policy Instruments are up for review
The Commission acknowledges the need to transform our economy and its relationship with society and the environment. Over the next 30 years we have the opportunity to make a just transition to a different way of life. Building a circular economy is a practical way for us all to work together on ensuring a safe and just space for humanity by 2050.

To do that we need to leverage all the policy instruments we have at our disposal to build a zero waste, zero carbon circular economy by 2050. Over the next few years all the big waste and resource efficiency levers are up for review. The Waste Minimisation Act 2008, the New Zealand Waste Strategy, action and investment plans are being developed for the Waste Minimisation Fund, vocational training is being reformed and the Infrastructure Commission is looking at a 30 year investment strategy.

This window of opportunity is only open for a short time. The Commission needs to capitalise on that opportunity by recommending that the Government pulls all the levers it has available to make the shift to a resource efficient circular economy.

Waste has had its day
In the past it was seen as an inevitable output of our production and consumption system. But waste is better understood as pollution and inefficiency. The framing and language in the advice needs to change to enable a different kind of conversation. Nowadays the story of how we use resources is about material and energy flows and the zero waste strategies we can use to make them more circular.

We are slowly growing alternatives to the 'take-make-waste' approach to running our economy. Over the last 20 years ideas like cradle-to-cradle, the performance economy, biomimicry and industrial ecology have been cross pollinating. The concept of the circular

[9] Colmar Brunton (2021) *Better Futures 2021*. Retrieved from https://www.colmarbrunton.co.nz/better-futures-reports-2021/.

economy has emerged as a useful frame for this thinking. The circular economy concept enables us to think more clearly about how we can use resources like materials and energy to meet our needs within social and environmental limits.

Concepts like sustainability, wellbeing, and outcomes are being brought into play to enable us to think consciously about the trade-offs we make every day. Between looking after ourselves now and keeping options open for the people that are yet to come. Between investing to grow local capacity and resilience and giving our capital to multinationals in exchange for their one size fits all 'solutions'. Between protecting and regenerating ecosystems, local economies, communities and families or exploiting them.

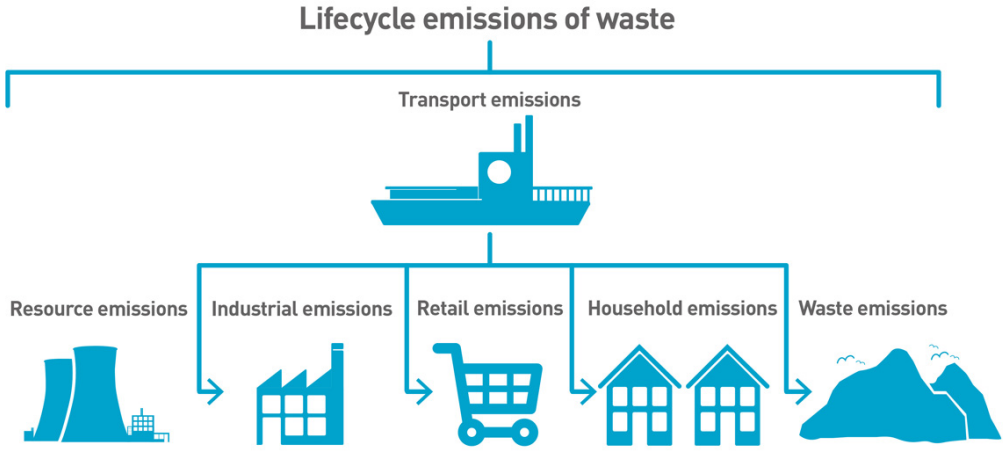
Creating rather than extracting value

To grow an economy that focuses more on creating value and less on extracting value we need a deep understanding of material and energy flows. We need a clear picture of our operating context and constraints. We need to know what it is we really value so we can place the economy in the service of those goals. Then we will be able to build an economy that serves people and the planet rather than the other way around.

To transform our relationship with waste we need to know what we are dealing with. Naming things is a useful way of unpacking the complex and messy pile that is 'waste'. Separating and sorting things into groups; following materials, energy and products as they flow through supply and recovery chains; understanding how pollution, inefficiency and emissions are generated along the way - these all help us to get a better understanding of the complex, dynamic global consumption system we are all part of.

Committing to a Circular Economy

Reducing throughput of materials and energy is critical. Zero carbon by 2050 is one piece of the puzzle. Zero waste by 2050 is the other. Right now our global circularity index is 8.9%. If we can double this over the next ten years we have a hope of staying within 1.5 degrees of warming. To do that we need to create circular loops at every stage of the production and consumption process. We need to make some tough choices about the products that are actually worth making in the first place. We need to focus our attention on the links between producing, consuming and emissions generation.



(Image from Zero Waste Scotland website)[10]

[10] Image taken from Zero Waste Scotland "What is the Carbon Metric?" at https://www.zerowastescotland.org.uk/our-work/what-carbon-metric.

The way 'waste' is framed in the advice
We think that the way the Commission has framed 'waste' in the advice will keep us stuck in the past. It is critical that the emissions generated through product life cycles are specifically recognised and targeted. By addressing this elephant in the room we go straight to the root of our climate change problems.

We agree that it is important to address emissions generated from biogenic methane in landfills and F-gases escaping to the atmosphere. We want to see the framing reflect the circular economy separation of materials into two main categories: Organic (biological) materials and inorganic (technical) materials. We see the omission of product and material flows from the Commission's advice as a fundamental flaw that must be remedied.

Key Transitions along our path
We suggest that the *Key transitions along our path* table on p.55 is adapted so the four overarching headings are: Resource Flows (replaces Waste and F-gases), Land, Heat Industry and Power and Transport. This framing should flow through the advice so that organic and technical material streams can be thought about through the supply and recovery chain independently of their potential to become waste. The label of 'waste' should only apply to materials that have gone into their final resting place in landfill (or energy from waste plants).

<table>
<tr><th colspan="5">Table 3.1 Key transitions along our path p 55
Revised version of Waste and F-Gases section</th></tr>
<tr><th colspan="2"></th><th>Budget 1
2022-2025</th><th>Budget 2
2026-2030</th><th>Budget 3
2031-2035</th></tr>
<tr><td rowspan="4">Resource Flows</td><td rowspan="2">Organic materials</td><td>Divert all organics</td><td>Ban organic material from landfill</td><td></td></tr>
<tr><td>Improve and extend landfill gas capture</td><td></td><td></td></tr>
<tr><td rowspan="2">Inorganic materials</td><td colspan="3">Extend product life through reuse, repair and upgrading
Encourage circular flows of products, materials and energy
Shift attitudes, mindsets and behaviors</td></tr>
<tr><td colspan="3">Improve recycling - closed-loop</td></tr>
<tr><td>Hydroflouro-carbons (HFC's)</td><td colspan="3">Reduce import of HFC's in second hand products
Increase end of life recovery</td></tr>
</table>

We have added simple descriptors of key concepts to give a sense of what is involved. More detail on the key shifts we envisage are included in our answers.

Our Alternative version of the Time Critical Necessary Actions and Necessary Actions
We think that the Commission should strengthen its advice in relation to waste and resource efficiency for three main reasons:

1. Resource efficiency strategies deliver substantial emissions reductions
2. There is a very short window of opportunity to align climate policy and waste and resource efficiency policy due to the review time frames for key policy instruments.
3. Investing in making the shift to a regenerative, circular economy is a critical mechanism for supporting local enterprises, organisations and communities to adapt to climate change and become more resilient.

We ask that the Commission incorporates a new Time Critical Necessary Action that joins the dots between waste reduction and emissions reduction into its recommendations package. This would sit alongside a revised 'necessary action 13'. Both of these are detailed below.

Proposed Time Critical Necessary Action XX **Comprehensive action to reduce waste and emissions**
Aligning waste and resource efficiency legislation, strategy, plans and investment with emissions reduction plans will enable a faster transition. Investing in circular resource use at the local scale will engage communities and support them to adapt to change and build resilience. We recommend that the Government take steps to support the reduction of all waste at source and to increase the circularity of resources in Aotearoa in order to reduce emissions.
We recommend the Government: A. Incorporate emissions data alongside traditional weight/tonnage measurements to account for the impacts of using and consuming resources. This will enable data generated through a consumption-based approach to supplement the production-based approach being used as the basis for accounting for emissions budgets and the 2050 target. B. Use the review of the Waste Minimisation Act 2008 to prioritise waste prevention and circularity and to align timeframes, targets and action on waste with the Government's emissions reduction plans and budgets. This will capitalise on the window of opportunity to align the two policy frameworks. C. Under the framework of the Waste Minimisation Act (reviewed 2021/22) establish binding targets for waste reduction including a zero waste by 2050 target to align with the zero carbon by 2050 target. This will enable the Government to clearly signal the waste and emissions reductions required to meet targets. D. Develop a long term national waste and resource efficiency strategy that provides clear objectives, a practical path away from single use, linear economy to a circular economy and enables the local and regional capacity and infrastructure required to support delivery. This will guide action and investment for the next three budget cycles, with regular reviews. E. Investigate the value of having an independent agency to implement the Waste and Resource Efficiency Strategy and key parts of the policy/regulatory landscape, such as taking the lead on product stewardship.

Progress Indicator
Targets set by July 2022 for waste and emissions reductions for all waste streams by 2035 Strategy to deliver these targets released by July 2022 with emissions reductions milestones for 2025, 2030 and 2035 that align with carbon budget timeframes Action and Investment plans that enable achievement of strategy outcomes and goals developed to align with 5 year Carbon Budget cycles. Waste Minimisation Act reviewed and amended by July 2023.

Necessary action 13
Replace original text (now in a separate Time critical necessary action) *We recommend that, in the first budget period, the Government take steps to support the reduction of waste at source, increase the circularity of resources in Aotearoa and reduce waste emissions by* **With new text** **We recommend that, in the first Budget period the Government make progress on:**
a. Using the New Zealand Waste Strategy to establish the connection between, and take action on, responsible production and consumption (SDG 12), increasing circularity and achieving zero waste and zero carbon targets by 2050. b. Using the waste hierarchy to prioritise action and investment to reduce both consumption and waste/landfill emissions by embedding behaviour change, keeping products and materials in circulation longer and designing out waste and pollution. c. Resourcing capacity building and infrastructure development using social procurement at the local scale to achieve community resilience, equity and justice, adaptation and emissions outcomes. d. Extending the concept of product stewardship as a mechanism for increasing circularity across supply and recovery chains and expand it to a wider range of products, prioritising products with high emissions potential, e.g. textiles e. Developing a methodology and measuring the circularity of the economy in a way that enables us to account for, and take action on, consumption-based emissions. f. Establishing a milestones framework for banning materials from landfill to signal Government's intent to increase circularity. g. Legislating for and funding co-ordinated data collection across the waste industry by December 2022

Six big issues

1. Do you agree that the emissions budgets we have proposed would put Aotearoa on course to meet the 2050 emissions targets?

Disagree

See answer to Q2, 3 & 4

2. Do you agree we have struck a fair balance between requiring the current generation to take action, and leaving future generations to do more work to meet the 2050 target and beyond?

Disagree

We are a developed nation and must be doing more. Our approach to transitioning equitably must take into account our role as a developed nation that has historically contributed more than our fair share of emissions, and account for the high-polluting industries that have profited from decades of pollution with little consequence.

It is essential that our actions account for our fair share to reduce the burden on future generations and communities on the frontlines of climate impacts, who have contributed the least to the problem but are paying the highest costs. The draft emissions budgets are inconsistent with a 1.5 degree pathway for 2030, particularly with the role Aotearoa needs to take as a highly developed nation to do more than the average (our fair share).

The cost must fall on industries most-responsible: Our policy approaches to equity must ensure that the cost of transitioning to a low-carbon future falls on industries most-responsible and companies rather than individual consumers so that policies do not regressively impact low-income communities.

3. Do you agree with the changes we have suggested to make the NDC compatible with the 1.5°C goal?

Disagree (our changes are not ambitious enough)

The Commission's approach is not ambitious enough: The first three carbon budgets proposed by the Commission require a very cautious and incremental approach to reducing emissions, before larger cuts in later years. But the Intergovernmental Panel on Climate Change's 1.5 degree report outlines that for a 66% chance of averting climate catastrophe, we must approach emissions reductions with deep cuts in emissions starting immediately.

4. Do you agree with our approach to meet the 2050 target that prioritises growing new native forests to provide a long-term store of carbon?

Strongly agree

5. What are the most urgent policy interventions needed to help meet our emissions budgets? (Select all that apply)

Action to address barriers - Pricing to influence investments and choices - Investment to spur innovation and system transformation

Multiple, urgent policy interventions are required and these should be determined by referring to the waste hierarchy and the perspective of local communities. Aotearoa can make a just transition from a throwaway culture to a low waste, low carbon circular economy by strengthening and resourcing local communities to produce locally grown kai and locally made goods, and to develop innovative, brave new solutions to prevent and reduce waste. Achieving this requires comprehensive education programmes and a balance of multiple, urgent policy interventions. The waste hierarchy, which prioritises prevention, reduction and reuse, can be used as a climate lens that highlights what these urgent policy interventions are.

The Commission should provide more detail on the interventions needed to reduce organic waste to landfill. For example, mandating separate collection of organics (first emissions budget) and ban organic waste from landfill (second emissions budget) to halve food waste at source by 2030 (in line with the NZ Food Waste Champions 12.3 goal), and divert more organic waste to local and regional composting. The Commission should also recognise the preference for local communities to build soil and sequester carbon through decentralised local composting systems, rather than centralised anaerobic digestion.

The advice should recommend binding reduction targets for all waste streams. When we reduce waste, we reduce emissions - policy interventions are needed to reduce waste across the board. The Commission's advice focuses on methane generated by organics in landfill. Government needs to set binding waste reduction targets in the Waste Strategy and the Waste Minimisation Act for all waste streams, organic and inorganic. This includes single use plastics and packaging, e-waste, textile, and construction and demolition waste.

Invest waste levy revenue in community-scale solutions at the top of the waste hierarchy: Waste Levy revenue must be invested in systems and infrastructure that support local communities to work at the top of the waste hierarchy to prevent and reduce waste in the first place and grow the reuse economy. To ensure a just transition, the Government needs to invest in local, community-scale solutions and SME innovators who are driving change.

Measuring and increasing circularity in our economy is urgent: accounting for the emissions reduction potential of a circular economy requires a greater role for the consumption-based approach to calculating emissions. Consumption-based emissions data follows the lifecycle of

products and materials, exposing both embodied emissions generated offshore and the upstream emissions cost of short lived consumer goods.

The government's approach to product stewardship must be strengthened to ensure schemes create reuse, repair and resource recovery systems that keep materials in circulation and extend product lifespans. Products that cannot be effectively reused, repaired, recycled or composted should be designed out of the economy. Targeting single use disposable products and right to repair should be prioritised.

The Commission's advice on waste should consider *all* waste streams and consumption-based measurements. For the waste sector, the Commission's advice focuses on reducing methane emissions from organics that end up in landfills. However, long-lived GHG emissions are also generated from the extraction, production, transport and consumption of packaging and goods, which is intrinsic to our current, unsustainable 'take-make-throw' linear economy. To meet the 2050 emissions targets, the Commission needs to expand its advice to consider *all* waste streams, and build consumption-based measurements into its analysis.

6. Do you think our proposed emissions budgets and path to 2035 are both ambitious and achievable considering the potential for future behaviour and technology changes in the next 15 years?

Agree

Ambition

The Commission's advice on waste takes us in the right direction but the recommendations need to be more specific, holistic, and ambitious, recognising that our current system is broken. Waste is a product of a system that does not recognise our interconnectedness with other species nor the natural systems of Papatūānuku. Many of the Commission's recommendations seek to find ways of reducing emissions without questioning the linear extractive economy, which fuels both climate change and waste generation.

In the report generally, but for the waste sector specifically, we feel a lack of alignment between the CCC's visionary narrative around emissions reduction, and the actual recommendations. We call on the Commission to harness the power of reduction and reuse strategies to reduce our emissions. We also urge the Commission to extend its focus beyond organic waste alone towards recommending that the New Zealand Waste Strategy and the Waste Minimisation Act set binding reduction targets for all waste streams, whether organic or inorganic. We also believe the Commission's organic waste reduction targets can aim much higher than 23% by 2030.

The potential of behaviour change

The Climate Change Commission's report underestimates the potential opportunity to harness the public's existing interest in waste issues as a gateway to behaviour change for climate mitigation. Successive Better Future Surveys by Colmar Brunton have shown that

waste, particularly the build up of plastic waste in the environment, is of high concern to New Zealanders. In 2021, three of the top 10 concerns were waste-related (in fact, these were the only environmental issues in the top 10 list):[11]

- Build up of plastic in the environment
- Not enough waste is recycled
- Overpackaging, non-recyclable packaging and landfill

The survey results indicate there is good potential to engage New Zealanders on climate friendly behaviour change using waste and resource conservation as the starting point. However, the Commission's advice does not mention waste streams that commonly concern New Zealanders, such as plastic and packaging, which have long-lived GHG impacts (particularly when consumption-based measurements are considered).

Many packaging types also have methane impacts - for example, any packaging with a fibre content that gets landfilled (including composite products that cannot be recycled or composted, such as Tetrapak). To this end, the Commission could be more ambitious by making recommendations about a broader range of waste streams that capture the public imagination, and also recognising the existing community-scale behaviour change work in this area that could be further supported.

The 24 Detailed Questions and Answers

1. Do you support the principles we have used to guide our analysis?

Fully support

1. Align with the 2050 targets	The 2050 targets are the bare minimum. We should aim to reach the target well before 2050 so we can end our contribution to climate change. Principle 1 should also align with the 1.5 degree commitment. Changing people's mindsets is key. Values, attitudes and behaviour flow through into the everyday actions that will determine the success of our response to climate change. We need to invest in aligning everyone behind this shared goal so that whatever our role in society, we are all pulling in the same direction.
2. Focus on decarbonising	We support this both/and approach. We need to reduce emissions onshore and sequester carbon in as many ways as possible at the same time.

[11]Colmar Brunton (2021) *Better Futures 2021*. Retrieved from https://www.colmarbrunton.co.nz/better-futures-reports-2021/.

the economy	We also need to be aware that our buying habits generate consumption related emissions offshore. We need to factor this into our approach so we are doing our fair share. This will require reducing material consumption/production alongside decarbonisation.
3. Create options	We agree that in a fast changing world it is critical to keep our options open so we don't end up with stranded assets. We need to prioritise longer term outcomes over short term economic interests. Building capacity, restoring ecosystems and strengthening communities and local economies is a good investment that creates potential for future generations.
4. **Change** 'Avoid unnecessary cost' to **Invest wisely**	Our suggested positive framing is a call to action. It is critical that we align all procurement decisions for Government, Councils, Business and Households with our emissions reductions targets. We need to have a good process for decision making so we achieve the best results in the long term rather than a half hearted response designed to deliver the bare minimum in the short term. The 30 year plus timeframe is a good fit with the outcomes focused wellbeing framework that the government is adopting for policy and budgets. Investing wisely speaks to: ● prioritising time critical necessary action over cost avoidance and inaction ● procuring for outcomes so that all of our purchasing power is used to deliver 'co-benefits' and support our long term emissions reduction and wellbeing goals ● managing trade offs between short and long term outcomes ● balancing national, regional and local investment to build capacity and resilience, and create opportunities ● ensuring effectiveness wins out over false economies that are often couched as "efficiency" ● valuing investment in human and social capital alongside infrastructure and technology
5. Transition in an equitable and inclusive way	The process of shifting to a low carbon circular economy creates an opportunity to do things differently. It is important that no-one gets left behind. We believe that upholding Te Tiriti underpins a genuine, active and enduring partnership with Iwi/Māori.
6. Increase resilience to	We agree that resources must be allocated at the local scale to ensure communities can adapt to social, economic and climate

climate impacts	change.
7. Leverage co-benefits	Climate change is part of a complex, dynamic and interrelated global system. What we do in one place affects what happens in another. Amplifying positive spillovers is the best way to leverage our capacity to make the shift to a low carbon circular economy. The well-being approach demands clear consideration of trade offs between social, environmental, economic and cultural aspects of life. A regenerative circular economy will help build these 4 capitals we depend on.
Add a new principle Recognise that we operate within global systems	The 7 principles are internally focused. It is critical to locate the work Aotearoa does on emissions reduction, sequestration and adaptation within the global context. Our national borders are of little interest to the climate system or the global economy. We need to think global and act local. The impacts of climate change on our environment and society will be felt at the local scale by people and places. The actions that we do (or don't) take will ripple out across the globe. This is especially important for us as a Pacific Island nation. We need to work together with our friends and neighbours to share knowledge, resources and experience so we can support one another on the journey.

2. Do you support budget recommendation 1? Is there anything we should change and why?

	Too ambitious	About right	**Not ambitious enough**	Don't know
Emissions budget 1 (2022 – 2025)			**Not ambitious enough**	
Emissions budget 2 (2026-2030)			**Not ambitious enough**	
Emissions budget 3 (2031-2035)			**Not ambitious enough**	

We need to end our country's contribution to global warming as soon as possible.

A strong commitment by the Government to align zero waste and zero carbon targets in 2050 would significantly reduce GHG emissions across the board. This is not factored into the Commission's draft advice and we think it is a weak point in the advice.

We support the submission of **Lawyers for Climate Action NZ Inc** in relation to this question.

3. Do you support our proposed breakdown of emissions budgets between gross long-lived gases, biogenic methane and carbon removals from forestry? Is there anything we should change, and why?

	Too ambitious	About right	**Not ambitious enough**	Don't know
Gross long lived gases			**Not ambitious enough**	
Biogenic Methane			**Not ambitious enough**	
Forestry			**Not ambitious enough**	

We need to end our country's contribution to global warming as soon as possible.

We think much more could be done to reduce biogenic methane emissions from both farming and organics in landfill. The target of 23% reduction in organic waste to landfill is much too low. A comprehensive use of policy instruments would enable organics to be banned from landfill by 2030.

Topsoil is a critical resource. The Commission flags soil health and soil erosion as environmental issues. We must ensure that suitable organic material is diverted and processed in ways that deliver the best outcomes (e.g. composting over anaerobic digestion) so it can be returned to our soils to restore and regenerate soil structure, carbon and fertility.

See our answer to Q13, 18, and 24 for more detail on this point

We support the submission of **Lawyers for Climate Action NZ Inc** in relation to this question.

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

Fully support

We think that Aotearoa should meet its obligations through domestic action. We do not

support the use of offshore mitigation to meet either our domestic targets or our NDC obligations. We must accept responsibility for reducing our fair share of emissions.

5. Do you support enabling recommendation 1 on cross-party support for emissions budgets? Is there anything we should change and why?

Fully support

We fully support the recommendation to seek cross-party support on emissions budgets and for the emissions budgets to be debated in the House to ensure political party positions are on the record. However, this should not be used as a way to delay the process or weaken the recommendations and targets.

We note that over the least 30 years, waste policy in Aotearoa has suffered from fluctuations in approach and priorities with changing governments. This has included vastly different waste strategies that have left efforts to reduce waste and circularise the economy rudderless, created uncertainty for communities, local government and business, and ultimately undermined waste minimisation in Aotearoa.

These policy fluctuations have continued, even though the Waste Minimisation Act was enacted in 2008 with cross-party support following an unusually long two-year select committee phase, during which time the draft bill was amended collectively by all parties.[12]

This experience leads us to believe that more may be needed to secure enduring cross-party support for the emissions budgets than a parliamentary debate. In the UK, there are already two all-party parliamentary groups focused on climate change.[13] We would support a recommendation that Parliament establish a Select Committee dedicated to climate change and resource conservation, or else another means of formalising cross-party discussion on climate change within the Parliamentary branch of government (rather than discussions being led by the Minister, as a representative of the Executive).

In 2019, Millions of Mothers released an Open Letter calling on political parties in Aotearoa to sign a formal Memorandum of Understanding to continue cross-party actions on climate change - the letter includes some useful recommendations the Commission could consider.[14]

Engaging the public on a deeper level with the emissions budget recommendations would be another indirect means of garnering cross-party support because if political parties' constituencies understand and broadly support recommended climate actions, politicians will follow.

Public engagement could include effective and non-partisan public communications by the Climate Change Commission about the emissions budget recommendations. The Commission could also recommend a citizens assembly as has occurred in the UK,[15] where

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[12] Hannah Blumhardt (2018) "Trashing Waste: unlocking the wasted potential of New Zealand's Waste Minimisation Act *Policy Quarterly* 14(4).
[13] The All-Party Parliamentary Climate Change Group (https://www.policyconnect.org.uk/appccg) and the Net Zero All-Party Parliamentary Group (https://netzeroappg.org.uk/).
[14] Petition of Alicia Hall and Millions of Mothers (2019) 'Formalise cross-party partnership to protect children from further climate breakdown'. Retrieved from https://our.actionstation.org.nz/petitions/formalise-cross-party-partnership-on-climate-plans.
[15] https://www.climateassembly.uk/.

participants reported a profound impact on their own perspectives on climate change.[16]

6. Do you support enabling recommendation 2 on coordinating efforts to address climate change across Government? Is there anything we should change and why?

Fully support

The enormity of the task of fundamentally restructuring our economy demands a whole-of-Government approach. This will be particularly important in the transition to a circular economy, which requires coordinated action at all levels of society and in all sectors, with Government in a unique place to lead and guide this transition through wise investment and regulation. Many barriers to action on preventing and reducing waste and emissions arise from sectoral silos, in which one narrow problem is addressed but other problems are consequently created.

A genuine commitment to Te Tiriti, alongside the Government's Wellbeing framework, are good starting points to create a benchmark for a whole-of-Government approach to climate change. This approach, which enables a focus on broad positive social and environmental outcomes, should be established in the core KPIs and outcomes of each Ministry and Department, alongside specific Ministerial and agency responsibilities.

We also believe an independent central government agency (similar to the Energy Efficiency & Conservation Authority) dedicated to the circular economy and resource conservation would be of value in ensuring a whole-of-Government approach, while also ensuring that action towards these tasks can transcend three-year election cycles.

7. Do you support enabling recommendation 3 on creating a genuine, active and enduring partnership with iwi/Māori? Is there anything we should change and why?

Fully support

The Commission must go beyond recommending that the Government simply ensures a genuine and enduring Treaty partnership. It must recommend that Government actions uphold the Articles of Te Tiriti themselves. The Government must not only enable Iwi/Māori to exercise *tino* rangatiratanga (this language must be used over simply 'rangatiratanga'), but must align all of its actions and policies to Tiriti justice.

More than just meeting Treaty obligations, this is an opportunity to place Te Tiriti at the heart of climate action. Enabling Iwi/Māori to be fully empowered to exercise tino rangatiratanga and kaitiakitanga is an opportunity to consolidate mitigation and adaptation strategies that build community resilience, ensure an equitable transition, prioritise intergenerational and ecological wellbeing, and for all of us to be good ancestors.

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[16] Jessica Murray (31 December 2020) "'It's awakened me': UK climate assembly participants hail a life-changing event" *The Guardian*. Retrieved from https://www.theguardian.com/environment/2020/dec/31/its-awakened-me-uk-climate-assembly-participants-hail-a-life-changing-event.

8. Do you support enabling recommendation 4 on central and local government working in partnership? Is there anything we should change and why?

Fully support

While we agree that legislation and policy between central and local government must be aligned, further recognition of the differentiated roles and responsibilities is needed. Central government currently holds the core legislative and regulatory power to set the broad agenda, whereas local government is often tasked with implementation and given responsibilities that can be overly burdensome.

In the waste sector, local government is responsible for waste management and minimisation, and yet central government holds all the regulatory levers to make genuine change. Historically, central government has not been sufficiently responsive to the needs and experience of local government in the area of waste minimisation, and we believe channels of communication could be strengthened in this regard.[17]

The Commission should recommend that central government devolve more comprehensive and enabling policy tools to give local government greater capacity to implement and adapt climate policies to local contexts.

9. Do you support enabling recommendation 5 on establishing processes for incorporating the views of all New Zealanders? Is there anything we should change and why?

Fully support

We support the idea of establishing an ongoing public forum on climate change, which we believe would engage more of the public of Aotearoa in climate action, as we noted in our answer to question 5 in relation to the experience of the UK Citizens Assembly on climate change.

10. Do you support our approach to focus on decarbonising sources of long-lived gas emissions where possible? Is there anything we should change and why?

Partially support

We agree with the need to decarbonise sources of long-lived gases. However, this is only one part of the overall picture for reducing long-lived gases. Decarbonisation should be accompanied by other complementary approaches centred around doing 'more with less'.

The key premise underlying the Commission's pathway is outlined at the beginning of the chapter:

> Emissions can be reduced through either adopting lower emissions technologies and practices, or through reducing production. Our approach has prioritised adopting lower-emission technologies and practices. We have only considered

[17] Hannah Blumhardt (2018) "Trashing Waste: unlocking the wasted potential of New Zealand's Waste Minimisation Act *Policy Quarterly* 14(4), pp.19, 23-24.

reducing production if there are no alternative ways to reduce emissions. (p.45)

While this approach makes sense for activities such as electricity generation, as the Ellen MacArthur Foundation makes clear, it will only address half of the pie chart of actual GHG emissions.[18] Reducing emissions is not the either/or endeavour that the Commission describes. Rather, we need to decarbonise ***and*** reduce production.

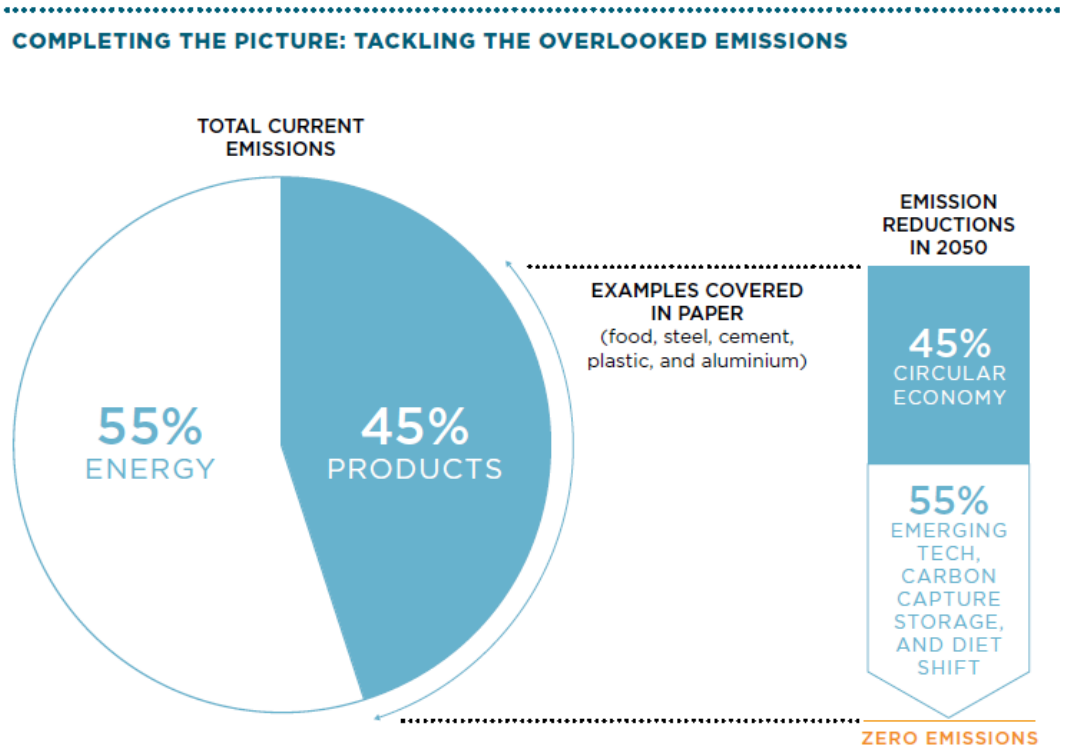

Image taken from Ellen MacArthur Foundation (2019) Completing the Picture: How the Circular Economy Tackles Climate Change, *p.13.*

We urge the Commission to take a more holistic approach that "moves us beyond efforts to minimise emissions in our extractive linear system",[19] and lifts up and encourages some of the solutions to reducing long-lived gases offered by the zero waste and circular economy sectors. These solutions are about reducing production, while still enabling widespread access to goods and services through a shift away from models of ownership and disposal towards public services and models of sharing and reuse.

For example, reducing emissions from the transport sector is not only about electrifying the private vehicle fleet, but also reducing the overall number of cars Aotearoa needs through prioritising access to EVs for car sharing schemes and public transport. We also need to

[18] Ellen MacArthur Foundation (2019) *Completing the Picture: How the Circular Economy Tackles Climate Change*. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/Completing_The_Picture_How_The_Circular_Economy-_Tackles_Climate_Change_V3_26_September.pdf.
[19] Ellen MacArthur Foundation (2019) *Completing the Picture: How the Circular Economy Tackles Climate Change*. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/Completing_The_Picture_How_The_Circular_Economy-_Tackles_Climate_Change_V3_26_September.pdf, p.12.

begin phasing-out certain types of products that require ongoing production, such as single-use applications for packaging or consumer products that are not designed to last.

In short, we cannot maintain current patterns of linear and individualistic production and consumption with decarbonised sources of energy alone. Pursuing this path misses out on the opportunity to make meaningful cuts in emissions, and is also likely to exacerbate current levels of inequality. In contrast, a shift towards more sustainable circular, shared and public services will help us address the other half of the emissions pie chart, while opening access to higher quality, low-carbon goods and services to a wider segment of the population (see also our answer to question 13).

11. Do you support our approach to focus on growing new native forests to create a long-lived source of carbon removals? Is there anything we should change and why?

Fully support

12. Do you support the overall path that we have proposed to meet the first three budgets? Is there anything we should change and why?

Partially support

As noted in our response to question 10, the pathway the Commission sets out for the different sectors overlooks many sources of GHG emissions associated with the extractive, linear economy and features no recommendations to support a shift towards a circular economy. Consequently, the Commission's proposed pathway is too narrow, and in some cases might actually drive the production of unnecessary GHG emissions that could be avoided or minimised with a more holistic approach.

Although waste is considered in its own section, waste also cuts across all the sectors considered in the report. The waste impact of some of the Commission's recommendations are often overlooked. By ignoring the consumption-based approach (see our answer to Q20), the Commission risks shifting emissions from its proposed solutions onto other countries. For example:

- In the transport section, the Commission's advice gives insufficient consideration to the impact of battery production and lack of appropriate end-of-life disposal options. It is also unclear what is supposed to happen to all the retired ICE cars and whether there could be a pathway for conversion for some of these vehicles to make use of the embodied energy within the existing cars.
- Shifting towards greater use of heat pumps for energy issues will increase HFCs and other refrigerants. The Commission must recommend greater regulation of the refrigerant recovery sector, to ensure that degassing is being done correctly. Furthermore, regulations such as mandatory product stewardship in this area need to cover household units, such as heat pumps, as well as commercial units.

We urge the Commission to call for ethical supply chains that support the purchase of products that have as long a lifecycle as possible (i.e. are durable and repairable), can be properly recycled at end-of-life, and do not come from countries with lower standards of environmental control.

We note the Commission's reference to product stewardship and the need to work with battery manufacturers to address end-of-life EV batteries. We have concerns about the government's current approach to product stewardship (see our response to q18). We believe the Commission should recommend that the government leads the work to reduce the impact of products across their lifecycle, rather than leaving this to industry, with a greater focus on achieving outcomes at the top of the waste hierarchy.

In the remainder of this section we highlight a few examples of how a more holistic approach that combines decarbonisation with efforts towards reduced or transformed production could harness greater emissions reductions.

Transport

See our comments in relation to transport in our answer to question 14.

Buildings

The Commission's section on buildings focuses exclusively on energy efficiency. We fully support moves to ensure energy efficient buildings. In addition, we urge the Commission to broaden its focus because construction is an area of great potential for further emissions reductions. Currently, the pathway for buildings does not consider the significant carbon emissions associated with new builds. Embodied carbon is responsible for 50% of buildings' carbon emissions. Furthermore, the construction and demolition sector contributes approximately 50% of NZ's waste to landfill. Key transitions for waste and emissions reduction must include this stream and take a whole lifecycle/circular economy perspective for all building and infrastructure projects.

Buildings should be seen as banks of materials. There are established low-cost technologies for reprocessing construction & demolition waste, as demonstrated by the Green Gorilla plant in Auckland and the use of concrete in Wellington's Centreport project. Products used at a local level, reduce material supply transport emissions, and support local resilience.

Buildings must be built to be net carbon zero as a minimum standard based on whole-of-life carbon assessment. Globally, this transition is occurring and research is showing that carbon negative construction is feasible with the right material choices. Designing out waste and design for deconstruction are two of 10 circular economy principles that must be observed for a building to be net carbon zero. Integrating these principles at the procurement and design phase supports waste reduction and maximises end-of-life recovery of materials.

Enabling policies should encompass changes to the Building Code, revision of specifications and mandated standards for all government procurement. Green Building Council, MBIE, BRANZ and Environmental Choice have all established appropriate tools and standards in this space. To enable the widespread use of recycled and reused materials over virgin materials, investment will be needed in local processing infrastructure, including the next generation of resource recovery centres that can enable local consolidation, sorting and preparation for reuse of materials.

Waste

As we discuss elsewhere in this submission (q18 and q20), we call on the Commission to recommend the reduction of all waste streams to landfill, whether organic or inorganic,

given the untapped potential to reduce upstream/lifecycle emissions of long-lived gases through waste prevention strategies that target inorganic waste streams.

By excluding inorganic waste streams from its analysis, the Commission's recommendations do not consider a multitude of products, including those that constitute a considerable (and increasing) proportion of the waste streams in Aotearoa, with known upstream emissions impact, such as textiles, plastics, and electrical and electronic products. For example, it is estimated that New Zealanders generate 99,000 tonnes of e-waste a year.[20] We also point the Commission to the submission of the Aotearoa Plastic Pollution Alliance that highlights the GHG impact of plastics across their lifecycle. The Commission's current advice is silent on these waste streams and the impact of the linear extractive model that fuels their ongoing production through single-use systems and/or short lifespans.

The arbitrary nature of focusing on organic waste, but not inorganic waste, also creates problems for understanding how to divert composite products from landfill that include both organic and inorganic elements (increasingly common). For example, many construction and furniture materials (including MDF), many packaging types (including, disposable takeaway packaging like coffee cups, and single-use packaging of consumer goods, such as plastic-lined brown paper bags or Tetra Pak), and also a great deal of textiles. By combining natural and synthetic elements, these products are often not recyclable or compostable.

The Commission's advice does not provide a clear pathway for addressing these waste streams. However, because they have an organic component, under the Commission's own analysis, they must be diverted from landfill to reduce methane emissions. We encourage the Commission to highlight the issue of composite products in its draft advice, and to consider zero waste/circular economy solutions that aim to design these types of composite products out of the economy entirely, through product innovation and the development of systems of reuse, combined with regulatory measures, such as product bans, levies and eco-modulating fees.

In Table 3.1 we would also like to see the Commission's pathway for waste follow a staged approach, rather than a generic action across all three budgets, which offers policymakers little guidance and runs the risk that the necessary actions do not happen fast enough or in a logical manner. For organic waste, the Commission should include timelines for various policy interventions. We suggest that separate collection and processing of organic waste be incentivised in the first budget period, made mandatory early in the second budget period, and a ban on landfilling organic waste be in place by the third budget period (see answer to Q18 for more detail).

We also recommend a target for halving avoidable food waste at source by 2030 be implemented in the first budget period. Also, we note that the two goals of diverting organic waste from landfill and improving and extending landfill gas capture are contradictory. We recognise the need to address legacy organic waste in landfill, but would support greater guidance from the Commission regarding how improved landfill methane capture can be achieved without undermining the momentum for action to divert organic waste from landfill in the first place.

We suggest that the *Key transitions along our path* table on p55 is adapted so the four overarching headings are: Resource Flows (replaces Waste and F-gases), Land, Heat Industry

[20] Vicktoria Blake, Trisia Farrelly and Jonathon Hannon (2019) "Is Voluntary Product Stewardship for E-Waste Working in New Zealand? A Whangarei Case Study" *Sustainability* 11(11). https://doi.org/10.3390/su11113063.

and Power and Transport. This framing should flow through the advice so that organic and technical material streams can be thought about through the supply and recovery chain independently of their potential to become waste. The label of 'waste' should only apply to materials that have gone into their final resting place in landfill (or energy from waste plants).

Table 3.1 Key transitions along our path p 55 Revised version of Waste and F-Gases section				
		Budget 1 2022-2025	**Budget 2 2026-2030**	**Budget 3 2031-2035**
Resource Flows	Organic materials	Divert all organics	Ban organic material from landfill	
		Improve and extend landfill gas capture		
	Inorganic materials	Extend product life through reuse, repair and upgrading Encourage circular flows of products, materials and energy Shift attitudes, mindsets and behaviors		
		Improve recycling - closed-loop		
	Hydroflouro-carbons (HFCs)	Reduce import of HFCs in second hand products Increase end of life recovery		

13. 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?

Fully support

We strongly support the recommendation in Time-critical necessary action 1 that the Government should develop an Equitable Transitions Strategy in the first budget period. We particularly support the recognition that transition planning is best "created for the local community, by the local community," and "will help ensure climate change policies are tailored to regional and local circumstances and address the needs and aspirations of different groups within the community" (p. 96).

It would be good to see a more positive story told about the potential of a climate-resilient, low-emissions Aotearoa. We recommend that Necessary Action 1 (e) places much stronger emphasis on accounting for positive co-benefits of particular actions. Overall, Chapter 5 seems to feature substantial assessment of costs, but little of benefits.

The chapter notes that benefits are difficult to assess because of uncertainty. However, there is significant potential to explore and account for other possible benefits, even if these are not quantified (as was done briefly around positive health impacts from warming up homes). The cost of doing nothing has also not been adequately assessed - this would certainly be easier to quantify than the benefits of action.

For example, the positive environmental impacts from waste minimisation (s 5.8, p. 101),

including potential for emissions reductions, go far beyond landfills. Minimising edible food waste, which is estimated to account for 6-8% of global GHG emissions,[21] can have a substantial emissions reduction impact alongside positive social outcomes such as redistributing low-cost food to those who need it. Diverting organic waste into composting can help reduce and offset agricultural emissions by substituting (at least partially) synthetic nitrogen fertiliser for compost and helping to sequester carbon in the soil. Investing in circularising the economy would help to reduce environmental litter and pollution, and could help reduce emissions and pollutants from resource extraction and refining, goods manufacturing, and transport of these materials and products (both within Aotearoa and globally) - particularly for short lifespan products.

An equitable transition must also take into account global equity. The draft advice currently only considers the issue of emissions leakage in relation to emissions-intensive domestic activities. This issue should be extended through use of a consumption-based analysis to account for our offshore emissions that come from imports of products with significant embodied energy. This issue is only acknowledged in passing in section 5.8, but its potential to create negative environmental impacts and an unequal global burden should be considered more seriously.

We have identified two key sectors in which big opportunities exist for an equitable, inclusive and well-planned transition to a low-carbon economy - the circular economy and the food system. We suggest that these specific areas are factored into the recommendations of Necessary action 1 (as per housing, insulation and heating policies).

The circular economy

- We would like to see specific recommendations that take advantage of the myriad benefits of far-reaching and ambitious policy and investment in circular economy actions, such as localised job creation potential. For example, a 2018 report found that a circular economy could grow Auckland's GDP by up to $8.8 billion by 2030.[22] This potential is recognised in passing in the Commission's advice (p.95), but the job opportunities that may arise in a transition to a circular economy, and the range of sectors in which those jobs could be created, are vastly understated and underestimated.

  A synthesis report by the International Institute for Sustainable Development summarises the key findings of various studies that show the significant positive impact a circular economy could have on both GDP and job creation.[23] Additionally, a recent study by the Global Alliance for Incinerator Alternatives (GAIA) found that for every 2 jobs in landfilling or incineration, there is potential instead to create 7 jobs in composting, 115 in recycling, 55 in remanufacturing, and 404 in repairing following a

[21] Ritchie, H. (18 March 2020) "Food waste is responsible for 6% of global greenhouse gas emissions", *Our World in Data*. Retrieved from: https://ourworldindata.org/food-waste-emissions; Food and Agriculture Organization of the United Nations (FAO), "Food Wastage Footprint & Climate Change", Sustainability Pathways. Retrieved from http://www.fao.org/3/bb144e/bb144e.pdf.
[22] Auckland Council and Sustainable Business Network (May 2018) *Circular Economy: A new dynamic for Auckland businesses.* Auckland Economic Insights Series, No. 6. Retrieved from https://www.aucklandnz.com/sites/build_auckland/files/media-library/documents/ATEED-economic-insight-paper-Circular-economy-final.pdf.
[23] Jensen-Cormier, S., Smith, R., and Vaughan, S. (September 2018), *Estimating Employment Effects of the Circular Economy*, (International Institute for Sustainable Development - IISD). Retrieved from: https://www.iisd.org/system/files/publications/employment-effects-circular-economy.pdf?q=sites/default/files/publications/employment-effects-circular-economy.pdf.

zero waste and circular economy approach.[24]

- Apart from jobs, a circular economy can unlock an entirely new approach to how consumers interact with goods and services. For example, the value and potential of a service-based (as opposed to ownership-based) sharing economy for things like cars, appliances etc. can not only produce better environmental outcomes through incentivising high-quality and durable goods, but also promote equity of access for those that might otherwise struggle to afford or use low-emissions technologies.

The food system

- We would like to see more specific recommendations that consider how the food system in Aotearoa can be adapted for a more equitable, inclusive and well-planned transition. This includes considering how increasing decentralised local food production can reduce emissions and waste due to shorter supply chains, as well as other co-benefits such as community food resilience and food sovereignty, carbon sequestration via regenerative urban farming, and more.
- We must also change what we grow in Aotearoa - without reconsidering our heavy reliance on export-oriented sheep, beef and dairy farming, we will continue to rely on imports of plant-based produce, reducing our food resilience and missing opportunities for diversification of farming.

We also suggest the following general principles to support the Commission's recommendations for a transition:

- Adopting social procurement to help ensure the benefits of transition are equitable.
- Provision of support for small business and local community innovators
- Potential for job creation in support/consultancy services in the transition to the circular economy; coaching, mentoring, innovation funding, and job creation in realising reuse activities and localised food production.
- Putting in place systems for knowledge sharing across Aotearoa - a localised approach is good, but we also want to share resources.
- Support for education of adults - we need this to progress because there is a lag time before changes in school education systems will feed through.

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

Support all the actions

The Commission's recommendations for reducing transport emissions reflect its approach of favouring decarbonisation/lower emissions technologies over reduced production (p.45). While the recommendations may lead to fewer long-lived gas emissions on the energy side, they still encourage excessive emissions of GHG that could be avoided through a more holistic approach. A circular economy perspective would place far more focus on reducing reliance on personal car ownership and expanding fully electrified public transport and EV sharing systems. Under a circular economy approach, these actions would be 'time-critical' rather than the second order 'necessary actions'.

[24] Ribeiro-Broomhead, J. and Tangri, N. (2021). *Zero Waste and Economic Recovery: The Job Creation Potential of Zero Waste Solutions.* (Berkeley: Global Alliance for Incinerator Alternatives - GAIA). Retrieved from: https://zerowasteworld.org/wp-content/uploads/Jobs-Report-ENGLISH-2.pdf.

The approach of prioritising the electrification of the private vehicle fleet will result in the offshore manufacture and import of far more vehicles and large, lithium-ion batteries than are necessary to meet our country's transport needs. Manufacturing EVs for a substitution approach will demand high levels of raw material extraction and GHG emissions, not to mention huge quantities of end-of-life batteries. Even with product stewardship schemes in place for batteries, the focus will be on retrieving the precious metals inside (such as the lithium), but many battery components are not easily recycled, such as the plastic casing that contains toxic additives.

The electric vehicles and batteries the Commission estimates we need to electrify the private vehicle fleet are not currently in the country and have not yet been manufactured. We should take the opportunity this situation presents to completely reframe how New Zealanders get around and our relationship with the vehicles we use. We urge the Commission to place greater focus on fostering a sharing/service model for EVs and an expanded public transport system.

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

Support some of the actions

We support the Submission of the **Community Energy Network** (CEN) in relation to this question.

In particular their comments that:

CEN endorses the call to review and assess Government standards and funding for housing insulation, ventilation, dryness and warmth funding in terms of household wellbeing and health.

CEN's view is that present standards are both incomplete and too low and that funding is inadequate. An adequate response will include funding of a wider range of retrofits, implementing a long term education strategy, developing a strong cross Ministry energy hardship 'cluster', and implementation of an Energy Performance Certificate type of system that pulls housing quality well above the Building Code minimum standards.

That the energy sector needs to be restructured to support a just or equitable transition. Access to and influence on the energy sector needs should allow all parts of community to engage in a meaningful way, including provision of infrastructure that is fit for purpose.

16. Do you support the package of recommendations and actions for the agriculture sector? Is there anything we should change and why?

Support some of the actions

Nowhere in the Commission's advice is biogenic methane emissions arising from management of manure and effluent discussed. These emissions have typically been considered a small and insignificant proportion of overall on-farm emissions, yet studies have found that the emissions from effluent management may be underestimated and

could be 3-5 times higher than previous measurements.[25] Effluent ponds (the most common effluent management system on our country's farms) have been found to be the most emissions intensive.

Various solutions have been proposed to reduce these emissions, including gas capture and utilisation, mixing and filtering techniques.[26] While such techniques and technologies may help to reduce (though not fully eliminate) methane emissions, none address the release of N_2O emissions that result from applying the processed effluent slurry to land, as is commonly done.

We recommend policies that enable and facilitate on-farm composting operations as a simple, viable solution that could help mitigate much of these emissions. While this would require adequate volumes of additional feedstocks of organic waste, these could be sourced by integrating on-farm composting into an overall organic waste collection and diversion strategy, as is the predominant and successful model in Austria.[27]

Developing this kind of decentralised, farm-based composting system/network can have numerous benefits for the agricultural sector and our country's approach to managing organic waste more broadly, and can be developed in both rural and urban settings. Using compost can help reduce on-farm emissions by offsetting the amount of chemical fertilisers and other inputs needed, as well as improve overall soil quality and help farms to better sequester carbon in the soil.[28]

Such a system can also provide new employment opportunities, especially for regional and rural areas. Furthermore, a decentralised composting network would reduce transportation emissions compared to centralised composting and anaerobic digestion facilities, and help close the nutrient loop by enabling organic waste to be processed and used close to its production source (including in urban and farm composting sites).

Additionally, we support the recommendations in Necessary action 11 to create options for alternative farming systems and practices for the purpose of emissions reductions. However, we feel that the opportunities of farming diversification are downplayed (as well as the costs of inaction). While the Commission acknowledges the fast growing demand for alternative plant-based proteins and products (e.g. section 9.4.2, p. 177), it has not acknowledged the new employment opportunities that these products can provide - not just in farming, but also in local processing, packaging and distribution activities.

For example, while oat milk is becoming increasingly popular as an alternative to dairy milk,[29]

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[25] Laubach, J. et al. (July 2014). *Review of gaseous emissions of methane, nitrous oxide and ammonia, and nitrate leaching to water, from farm dairy effluent storage and application to land*. (Wellington: Ministry for Primary Industries). Retrieved from: https://www.mpi.govt.nz/dmsdocument/30131/direct.

[26] Gluckman, P. (July 2018) *Mitigating agricultural greenhouse gas emissions: Strategies for meeting New Zealand's goals* (Wellington: Office of the Prime Minister's Chief Science Advisor). Retrieved from https://www.pmcsa.org.nz/wp-content/uploads/Mitigating-agricultural-GHG-emissions-Strategies-for-meeting-NZs-goals.pdf; Laubach, J. et al. (July 2014) *Review of gaseous emissions of methane, nitrous oxide and ammonia, and nitrate leaching to water, from farm dairy effluent storage and application to land* (Wellington: Ministry for Primary Industries). Retrieved from: https://www.mpi.govt.nz/dmsdocument/30131/direct.

[27] See https://zerowastecities.eu/webinar/decentralised-management-of-organic-waste/

[28] Favoino, E. and Hogg, D. (2008). "The potential role of compost in reducing greenhouse gases." *Waste Management Research*, vol. 26. pp. 61-69; Ryals, R. et al. (2015). "Long-term climate change mitigation potential with organic matter management on grasslands." *Ecological Applications*, vol. 25, no. 2. pp. 531-545.

[29] See e.g. Glen McConnell (12 January 2021) "The strange reason New Zealand is in the midst of a national oat milk shortage" *Stuff*. Retrieved from

Aotearoa currently has no processing factories. So, Aotearoa-grown oats must be shipped overseas to be processed, and packaged into lightweight but non-recyclable fibreboard cartons to be imported back into Aotearoa as milk. This whole process - from transport and manufacture to the packaging and its disposal - generates emissions that could be reduced through harnessing the opportunities presented by local diversification.

Supporting the diversification of farming towards more crops and horticulture, along with innovative zero waste, low emissions and circular product processing, distribution and packaging design, could create substantial job opportunities in these areas where the market is growing fast (see response to Q13 on the job creation potential of the circular economy).

17. Do you support the package of recommendations and actions for the forestry sector? Is there anything we should change and why?

Neutral

We believe a multisector approach to climate policy and actions is fundamental and essential. In our view, the alternative siloed approach has no logical support and is certain to fail. With this in mind, any recommendations for the forestry sector need to be considered with all other recommendations.

18. Do you support the package of recommendations and actions for the waste sector? Is there anything we should change and why?

Support some of the actions

In our introduction we have discussed the general approach we consider needs to be taken to put action on reducing waste in the service of our country's climate change response. In this section we respond to the five recommendations under Necessary Action 13, as they appear in the draft advice.

Recommendation A:

Setting ambitious targets in the New Zealand Waste Strategy for waste reduction, resource recovery and landfill gas capture to reduce waste emissions in Aotearoa by at least 15% by 2035

The Commission's advice focuses on biogenic methane emissions from landfill. We assume that the 15% reduction in emissions by 2035 means a 15% reduction in emissions from biogenic methane, achieved through the Commission's recommended pathway of a 23% reduction in organic waste to landfill and an increase in landfill gas capture. If this is the recommendation that gets carried forward into the final version of the advice, we think it would be useful to make this clearer by adding 'organic' between "Strategy for" and "waste reduction" in the wording of recommendation A. However, as we note below, we believe that focusing on reducing organic waste alone is too narrow a goal. Alternatively, if the Commission actually intends recommendation A to apply to a reduction in all waste streams, then the target should be far more ambitious than a 15% reduction in emissions.

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https://www.stuff.co.nz/life-style/food-wine/300202118/the-strange-reason-new-zealand-is-in-the-midst-of-a-national-oat-milk-shortage.

The regulatory framework for waste is going into a period of rapid change. The Waste Minimisation Act 2008 is set to be reviewed and updated during 2021/22. A new New Zealand Waste Strategy is being developed in 2021. The Ministry for the Environment is developing comprehensive Action and Investment plans to guide the investment of the Waste Minimisation Fund revenue which will increase steadily over the next 3 years.

There is a time critical opportunity to shape these documents so they closely align with Government action on climate change. This will focus our sector on common outcomes and support cross-government cooperation. A number of countries across Asia and Europe (and the EU as a whole), and individual cities like Glasgow and Amsterdam, are already working on Circular Economy strategies to align work on resource use and responsible consumption with their emissions reduction goals. We think Aotearoa should do the same.

We would like to see a Zero Waste by 2050 target included in legislation to sit alongside the Zero Carbon by 2050 target in the Zero Carbon Act. Targets must be binding. Work needs to be done to find the best way of setting targets and allocating accountability for them between legal and policy instruments - like legislation, regulation, strategies and action plans - and between government agencies. A set of high level targets must be included in the Waste Minimisation Act and the Zero Carbon Act so they cannot be ignored or watered down. This will clearly signal upcoming changes.

All waste streams have an emissions profile that can be measured through carbon footprinting. We think the Commission should recommend that specific targets be developed for all waste streams, which would reduce onshore and offshore emissions (see Q 20 for detail on consumption-based emissions.)

In relation to organics

We recommend a target of at least 60% diversion of organics from landfill by 2035. This would be achieved by:

- Requiring households and businesses to separate organics at source via separate collections or on-site processing (e.g. composting). This should become mandatory by 2026.
- Implementing a ban of organic waste to landfill (to take effect by 2030), during the first budget period. This can already be achieved via regulations under the current Waste Minimisation Act (s 23(1)(a)) - we presume that this current regulatory power will carry over into the updated legislation.
- Investing waste levy revenue and other funds in local (decentralised) and regional (centralised) composting facilities and collections systems during the first and second budget periods.
- Establishing and implementing targets and strategies for other key organic streams, like fibre, textiles, paper and card, construction and demolition materials, and animal wastes.

We also recommend adopting a target to halve food waste at source by 2030 (in line with the UN SDG 12.3, called for by NZ Food Waste Champions 12.3), in the first budget period. Waste prevention is critical for reducing both biogenic methane and consumption emissions.

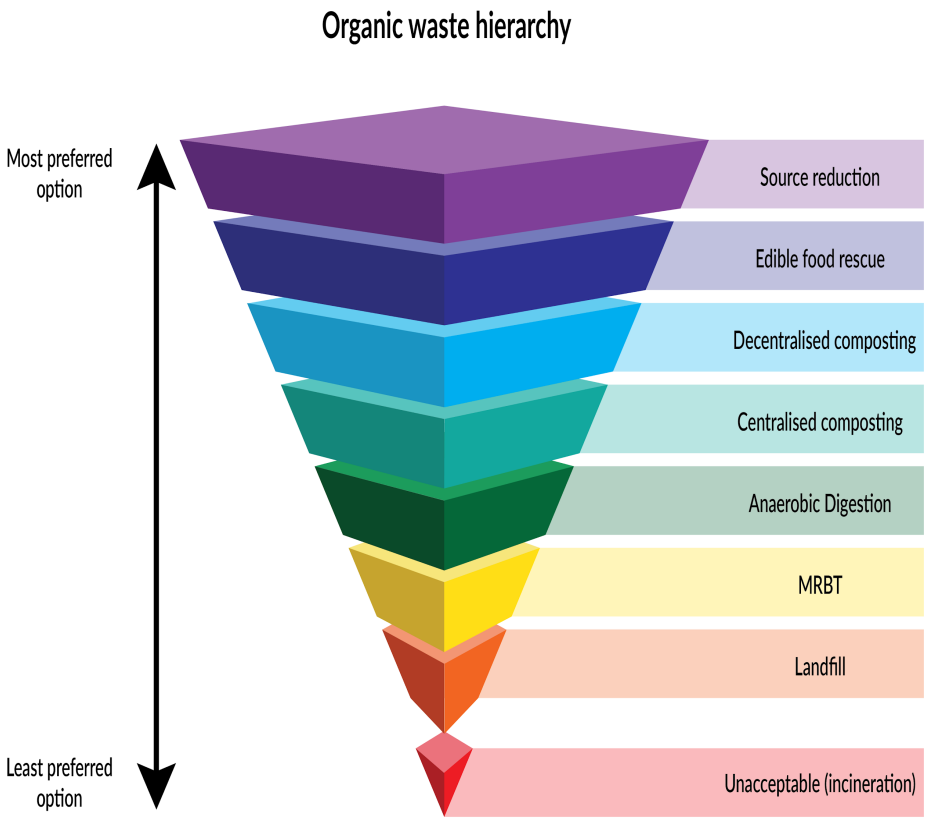
We note the Commission's recommendation that a moratorium be placed on new gas installations in buildings. We believe a similar moratorium should be placed on the installation of food waste disposal units (such as Insinkerator) in new developments, which typically result in organic waste going to landfill via the wastewater system.

Policy guidelines and investment around organic waste infrastructure development must

follow the waste hierarchy for organics, which prioritises prevention, redistribution, reduction, and local processing over tech-heavy, large scale infrastructure (see image below).[30] This will give the best long term outcomes, create multiple co-benefits and positive spillovers by building local capacity and resilience.

It is also critical that we maintain a focus on medium to long term outcomes. What may seem an ideal solution when looking at the problem from a short-term, 'divert waste from landfill' perspective could lock us into expensive, inefficient, less resilient job-poor systems, with limited emissions reduction potential.

Waste levy revenue offers a limited window of opportunity to invest in transforming the way we use resources and energy to meet our needs and wants. It is critical that we use this to make the jump to a zero carbon, regenerative circular economy. Making do with an incremental shift to 'ever so slightly less unsustainable' options will burn our cash and leave us on the wrong side of history.



For food and green waste - post consumer and post production

[30] Apart from the benefits of reducing and redistributing edible food waste discussed elsewhere in our submission, see this useful discussion on choosing between composting and anaerobic digestion: https://zwia.org/composting-and-anaerobic-digestion-policy/

Recommendation B

Investing the waste levy revenue in reducing waste emissions through resource recovery promotion of reuse and recycling, and research and development on waste reduction

We fully support more strategic and transparent allocation of waste levy revenue according to the waste hierarchy. The key priorities are waste prevention and reduction and building a healthy reuse economy in which products are durable and systems are in place to keep them circulating for as long as possible.

Foreground the waste hierarchy and community-scale investment

A greater proportion of waste levy revenue should be invested in local communities to deliver zero waste and circular economy outcomes. This includes iwi and hapū waste minimisation projects. Investing at the local level supports climate resilience and tino rangatiratanga.

We would prefer to see the items listed in the recommendation B run from the top of the hierarchy to the bottom (i.e. listing waste reduction first, and finishing with recycling and resource recovery). The wording in the recommendation reads as though we should start taking action near the bottom of the hierarchy, with resource recovery, while spending time figuring out how to reduce waste through research and development - an approach that does not seem to recognise or acknowledge all the work already being done in prevention, redesign, reuse, repair and closed loop recycling. Furthermore, 'promoting' reuse and recycling signals a passive approach through behaviour change campaigns rather than an active use of policy instruments and investment to drive a shift towards effective reuse systems, closed loop recycling and a circular economy.

We need investments of waste levy revenue to tip the playing field in favour of actions at the top of the hierarchy. These actions are already happening, but are starved of capital and not well supported through policy instruments. The Commission should clearly signal the opportunity for the Government to use waste levy revenue and the contestable Waste Minimisation Fund to pivot from a focus on managing waste to a focus on the zero waste strategies that enable a circular economy.

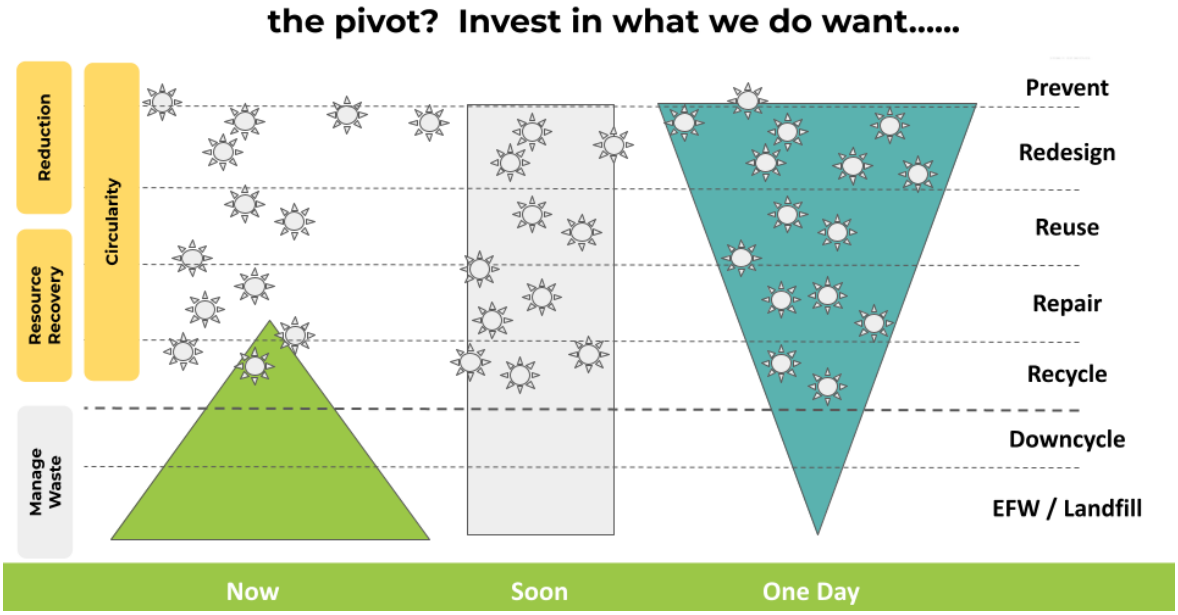


Image from Zero Waste Network Aotearoa NZ stock file

1. *Emphasise the need to avoid infrastructural lock-in; invest according to zero waste principles*

In the US context, environmental consultant Maggie Clark, draws the critical link between zero waste solutions and reducing climate change, and then observes that "State and local budgets for zero waste solutions are typically starved while disposal budgets dominate."[31] The pattern is the same in Aotearoa. The Commission must call on the government to flip the conversation and redirect the flow of the money.

Elsewhere in its advice, the Commission notes that the "Government's policy decisions and investments must not lock Aotearoa into a high emissions development pathway... At the moment there are insufficient safeguards to prevent this." (p.129) The Commission also underscores the necessity of ensuring 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." (p.129).

We fully support these statements, and urge the Commission to re-emphasise them in its waste recommendations section. We also urge the Commission to provide clearer guidance regarding the types of investment local and central government should avoid and those they should pursue, to guarantee climate appropriate transformational investment that makes our economy less wasteful.

In the last 20 years, the waste policy and infrastructure landscape in Aotearoa has been characterised by investments and decisions that have locked us into large-scale, centralised waste systems with poor resource recovery outcomes. This includes the move to multi-million dollar waste and recycling collection contracts with international corporations, and an associated reliance on centralised material recovery facilities needed to sort the vast quantities of commingled resources this system generates.

This approach has required significant infrastructural investments and multi-year contracts that have locked much of Aotearoa (especially the major centres) into generating low quality recyclate, and ultimately contributed to the recycling crisis in Aotearoa, while detaching everyday people from their waste footprint and resource consumption.[32]

Papering over the cracks of this broken system has required ongoing investment in expensive technological 'solutions'. Most recently, covid-19 stimulus funds were used to purchase high-end optical sorters for these centralised material recovery facilities (which would have been entirely unnecessary had Aotearoa moved towards best practice separate stream collections). Rather than an investment, this use of public funds is better understood as a bail-out for a privately-delivered, failing resource recovery system.

We have to avoid the mistakes of the past and ensure that all future policy and investment decisions in the area of waste and resource recovery are assessed through a zero waste, circular economy, climate lens, and whether they will improve local community resilience. Such analysis will become particularly urgent in the case of organic waste diversion, given the Commission's advice is likely to trigger a considerable redirection of waste policy and investment towards getting organic waste out of landfills.

Organic waste diversion will become a key area to test whether the government will favour

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[31] Maggie Clarke (2 December 2020) "Consumption, Climate, Zero Waste, and the Green New Deal" (Presentation at the National Recycling Coalition's Zero Waste Conference 2020). Retrieved from https://nrcrecycles.org/2020-national-zero-waste-conference-webinar-recordings/.

[32] Blumhardt, H (2018) "Trashing Waste: Unlocking the wasted potential of New Zealand's Waste Minimisation Act" *Policy Quarterly* 14(4), p.15.

community enhancing decisions, or the locking-in of centralised, engineered solutions that take resources out of the community and increase carbon emissions through the trucking of organic waste over long distances to centralised facilities. For this and other future waste policy and investment decisions, we strongly encourage the Commission to recommend that the government use waste levy revenue to build back better according to the principles of zero waste, specifically following overseas blueprints, such as the Zero Waste Cities' Master Plans.[33]

Image 5: Comparison between the traditional waste management and the zero waste approach.

Image showing what we need to move away from and what we need to move towards.[34]

2. *Overhaul the WMF process and broaden horizons*

The WMF allocation process requires an overhaul to improve transparency, to ensure better alignment with the wider goals of the waste policy programme, and to widen access for community-scale initiatives. Major grants tend to favour large industry players with existing

[33] Joan Marc Simon, Jack McQuibban, Pierre Condamine (2020) *#ZeroWasteCities The Zero Waste Master Plan - Turning the Vision of circular economy into a reality for Europe* (Zero Waste Europe). Retrieved from https://zerowastecities.eu/wp-content/uploads/2020/07/2020_07_07_zwe_zero_waste_cities_masterplan.pdf; Aditi Varshneya, Ruth Abbe and Alex Danovitch (2020) *The Zero Waste Master Plan: A guide to building just and resilient cities* (Berkeley, CA: Global Alliance for Incinerator Alternatives). Retrieved from https://zerowasteworld.org/zwmp/.

[34] Joan Marc Simon, Jack McQuibban, Pierre Condamine (2020) *#ZeroWasteCities The Zero Waste Master Plan - Turning the Vision of circular economy into a reality for Europe* (Zero Waste Europe). Retrieved from https://zerowastecities.eu/wp-content/uploads/2020/07/2020_07_07_zwe_zero_waste_cities_masterplan.pdf, p.29.

capital, while community-scale allocations are dominated by behaviour change and litter clean-up campaigns rather than supporting those in the community with tangible waste reduction projects and business ideas who lack capital to progress or increase their scale. Given the funds available to the Ministry will soon increase with the imminent rise of the waste levy, this reassessment of the WMF is urgent to avoid a poorly considered 'spending spree' or 'feeding frenzy'.

The WMF should be helping to chart a course towards a new and different low-carbon, zero waste economy where circularity is normal. The types of innovation needed to get us to this brave new world are unlikely to come exclusively from those within the current waste and recycling system. Hannon notes how individual family/household and community zero waste practice "serves to challenge the historical assumptions and the fiscal, practical, theoretical and disciplinary conventions of the traditional waste management sector" and to "confirm the achievability of priorities at the top of the waste hierarchy." He concludes that "Simple, cost effective individual/community-based behavioural change, renewed strategy/policy/design frameworks and allied investment in appropriate technology, infrastructure and services, can significantly reduce and address, *end of pipe* waste… before it manifests as a problem."[35]

And yet, many of the businesses and organisations with whom the Ministry for the Environment traditionally interacts on waste minimisation are from the waste and resource recovery sector. Although these organisations are critical, there is a need to engage with (and make funding available to) a wider range of stakeholders. Some examples of those whose work has circular, waste minimisation outcomes but who operate outside the waste and resource recovery sector (and thus mostly are not on MfE's radar) are:

- Businesses who are transforming how goods get to consumers. For example, Ethique, who have created solid bar or concentrate versions of liquid toiletries and cleaning products, eliminating the need for plastic bottles (and the carbon intensive process of shipping liquid products). The volume of Ethique's sales to date would have required 6.5M plastic bottles had they been in a traditional liquid format.
- Urban farmers, who divert considerable tonnages of organic waste at a community scale (considerable relative to their access to funding and procurement) to then grow food locally.
- The growing nationwide network of zero waste grocery stores who are finding ways of getting essential goods to consumers without single-use packaging, and in the process working with local suppliers and growers to shorten supply chains, while also reducing waste.

We could list countless more examples of the many innovators developing businesses, social enterprises or community organisations with clear waste minimisation outcomes, but who are not considered when waste levy revenue is allocated. These actors also typically do not have the resources or time for the Ministry's cumbersome and opaque WMF process, which is also not suited to decentralised funding allocations. We urge the Commission to recommend that the WMF process is overhauled to enable a greater proportion of waste levy revenue to go towards these innovators acting at the top of the waste hierarchy.

Recommendation C: Measuring and increasing the circularity of the economy by 2025

We strongly support this recommendation, which is critical for realising and valuing the

[35] Jonathon Hannon (2020) "Exploring and Illustrating the (Inter-) Disciplinarity of Waste and Zero Waste Management" *Urban Science* 4(73).

carbon reduction potential of activities at the top of the waste hierarchy. We believe that this research is a very big task, requiring a perspective that stretches beyond the traditional ambit of the waste team at the Ministry for the Environment. In our view, the Commission should recommend the establishment of an independent central government agency for zero waste and the circular economy that can carry out this urgent and important work (in addition to leading the extension of product stewardship schemes, see below).

We also note that efforts to measure and increase the circularity of the economy must include an assessment of how circularising the economy can reduce carbon emissions. This will require greater use of consumption-based emissions accounting or carbon footprinting (see our answer to question 20 below).

Recommendation D: Extending product stewardship schemes to a wider range of products, prioritising products with high emissions potential

We support the recommendation to extend the use of product stewardship. However, the current approach to product stewardship in Aotearoa is not fit-for-purpose when it comes to ensuring schemes actually drive a reduction in GHG emissions and grant communities greater control over the resources flowing through the economy. We believe the Commission could provide further details in its draft advice that explains to the Government, and to current and future scheme designers, how product stewardship can achieve emissions reductions and full internalisation of social and environmental costs.

1. *Product stewardship needs to focus on the full product lifecycle and achieve outcomes at the top of the waste hierarchy*

To date, product stewardship has largely been used as a vehicle to establish open-loop recycling schemes for hard-to-recycle products, or to ensure safe disposal of waste. When it comes to climate mitigation, these outcomes only scratch the surface of what product stewardship can (and must) achieve.

In their Circularity Gap reports, Circle Economy emphasise that to avoid more than 1.5 degrees of global warming, high-income countries like Aotearoa must implement policies to reduce high levels of material consumption.[36] Product stewardship has the potential to act as a critical tool to achieve this. However, to do so, schemes must utilise regulatory interventions at *all stages of the product lifecycle*, not just the end-of-life, and focus on achieving outcomes at the top of the waste hierarchy.[37]

Most existing or proposed product stewardship schemes in Aotearoa rely on open-loop (rather than closed loop) recycling. Open-loop recycling may divert materials from landfill, but does not put the brakes on raw material extraction and arguably becomes recycling for recycling's sake, rather than reflecting the true environmental purpose of effective closed loop recycling (keeping resources in circulation by returning them back into the

[36] See The Circularity Gap Report 2021 (https://www.circularity-gap.world/2021) and reports from previous years: https://www.circularity-gap.world/global.

[37] Sanz, V.M., Rica, E.D., Palacios, E.F., Alsina, A.M., Mouriz, N.V. (2015) *Redesigning Producer Responsibility: A new EPR is needed for a circular economy*, Fundacio per la Prevencio de Residus i el Consum: Barcelona (report written for Zero Waste Europe), https://zerowasteeurope.eu/wp-content/uploads/edd/2017/12/EPR-web-upload.pdf; Lane, R. and Watson, M. (2012) 'Stewardship of things: The radical potential of product stewardship for re-framing responsibilities and relationships to products and materials' *Geoforum* 43; Jonathon Hannon (2020) "Exploring and Illustrating the (Inter-) Disciplinarity of Waste and Zero Waste Management" *Urban Science* 4(73), p.4.

manufacture of the same product, with the same function, thus reducing the need to repeat the energy intensive process of extracting raw materials to make more of the same product).

Therefore, in addition to tools to boost product recovery rates and recycling, product stewardship must also include upstream interventions that extend product use phases (i.e. keep products in circulation as long as possible), and reduce raw material extraction and overall levels of production. This might include policies to increase reuse, maintenance and sharing, such as reuse targets or quotas for packaging, product design specifications for reusability and durability, or levers to normalise the sharing or service economy and reduce the over-duplication of resources inherent in the ownership model. Product stewardship schemes should also set binding reduction targets and import levies or restrictions for certain products, material and additives (for example, binding reduction targets for plastic packaging), bans on certain products, and facilitate a move away from single-use applications of certain products (such as takeaway packaging) towards reuse systems. Products that cannot be reused or recycled should be phased-out of the economy.

2. *Product stewardship should be led, designed, monitored and enforced by the government, not industry.*

The way we understand, design and implement product stewardship requires an overhaul if schemes are to meet our expectations of emissions reduction. The government's current approach to mandatory product stewardship is for industry to lead 'co-design' of schemes for priority products. It is important to recognise that interventions required to reduce material consumption would trigger reasonably significant shifts in current business and economic practices. Industry is likely to perceive such transitions as a threat to their actual or perceived immediate interests. Putting industry in charge of scheme design runs the risk that schemes do not result in necessary emissions reduction outcomes nor foreground community or environmental interests.

Accordingly, for product stewardship to meet the Commission's climate-related goals, the Government should provide neutral facilitation and oversight of the scheme design process. Such oversight recognises that properly designed product stewardship schemes are a public good necessary to reverse the harm caused by economic practices that have externalised social and environmental costs for decades. We urge the Commission to add to recommendation (d) a further recommendation that the Government establish a properly resourced, independent central government agency for Zero Waste and the Circular Economy. One key function of this agency would be to lead the design, application, monitoring and enforcement of both voluntary and mandatory product stewardship schemes for the public interest.

3. *Risks around reference to products with high emissions potential*

The Commission recommends that product stewardship is extended to products with high emissions potential. We are concerned that this recommendation may create confusion and reduce the scope of future product stewardship schemes given the Commission's narrow analysis of emissions from waste (focused on methane emissions from organic waste in landfill). Is the Commission recommending that product stewardship schemes prioritise products with organic material components, such as paper, cardboard, wood? If so, this has the potential to deprioritise future product stewardship schemes for products with high *upstream* emissions that currently fall outside the Commission's analysis (e.g. anything made of plastic, including textiles; common consumer items; end-of-life vehicles etc).

Product stewardship is a tool derived from zero waste and circular economy theory, which aims to internalise upstream social and environmental costs, including emissions, to trigger product redesign. Product stewardship is about products, not waste, and considers the full

lifecycle. To determine which products have high emissions potential, it is necessary to take a broader view than the Commission's production-based, end-of-life, landfill-centric analysis. We are concerned that tying this recommendation about product stewardship to the Commission's analysis of end-of-life landfill emissions may result in confusion regarding how to prioritise future product stewardship schemes.

We are also of the view that product stewardship is an approach that should be normalised and applied to all products in our economy, not just problematic products. Focusing on specific classes of products (i.e. high emissions potential) misses product stewardship's potential as a key tool to incentivise and guide product redesign in order to circularise our economy for all material flows and consumption patterns.

Recommendation E: Legislating for and funding coordinated data collection across the waste industry before 31 December 2022

We agree with the Commission that we need good data to guide policy and practice across the supply and recovery chain. End of life statistics are just one piece of the puzzle. We would like to see the Commission make a more specific recommendation around the types, quality and purpose of the data to be collected and emphasise data collection methodologies that enable a better understanding of circularity.

We need to improve data collection for business-as-usual activities like landfill and diversion rates, and we need to add ways to measure the emissions reductions generated by prevention, reduction and reuse activities. We can learn from countries like Scotland who are using sophisticated material flow accounts to measure resource use alongside carbon footprinting, which measures the change in both onshore and offshore emissions impact of their consumption year on year.

Cities and countries around the world are also coming up with ways to map and measure the reuse sector. These Reuse Impact Frameworks and Reuse Impact Calculators quantify the environmental impacts of reuse activities, including GHG emissions reductions.[38]

Material flow analysis follows materials as they travel through the supply and recovery chain. Different processes generate different outcomes, it is important that these are taken into account at the decision making and planning stage so the options that will generate the best long term outcomes across the board are chosen. There is little point in heavily investing in methane capture systems for landfills if our goal is to ban organic material from landfill within ten years.

For example, improving data on organics diversion rates should also take into account the specific material and emissions impacts of the:

- processing methodology - i.e. composting (windrow/in-vessel; aeration vs fermentative) or anaerobic digestion (compared against a base case of landfilling)
- scale of the processing, e.g. small vs large scale
- emissions implications of collection, transport and processing elements
- quality of the end product
- end use of the material - e.g. compost or digestate used in agriculture or horticulture, land remediation, or otherwise.

[38] New York City Department of Sanitation (2019) *NYC Reuse Sector Report*. Retrieved from https://dsnydonate.cityofnewyork.us/wp-content/uploads/2018/09/2019-NYC-Reuse-Sector-Report-FINAL.pdf. Michael Lugo, Snehesh Shivananda Ail and Marco J Castaldi (2020) "Approaching a zero-waste strategy by reuse in New York City: challenges and potential" *Waste Management & Research* 38(7).

At the moment, the best we can do is sometimes confirm that organics have been 'diverted from landfill'.

The recommendation currently calls for improved data collection across the waste industry, but this is unclear as to which actors are covered and what material streams are covered. To improve waste policy to reduce waste and emissions, Aotearoa needs better data not only about waste, but about different activities that reduce waste.

For example, we should be recording flows of recyclate not just waste (a point also raised by the Prime Minister's Chief Science Advisor in their report *Rethinking Plastics*). We need to be better able to quantify the impact of reduction and reuse strategies, which includes data measurement techniques. These activities sit outside what many would consider to be the traditional 'waste industry'.

F-Gases

In the context of product stewardship for refrigerants (and prior to alternatives to HFCs being widely used), the Commission must recommend greater regulation of the refrigerant recovery sector, to ensure that degassing is being done correctly. Furthermore, regulations such as mandatory product stewardship in this area need to cover household units, such as heat pumps, as well as commercial units.

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

Support all the actions

We believe a multisector approach to climate policy and actions is fundamental and essential. In our view, the alternative siloed approach has no logical support and is certain to fail.

We support the Commission's recommendation that behaviour change is embedded as a desired outcome in climate change policies and programmes to enable New Zealanders to make choices that enable low emissions outcomes. Together, the organisations who have contributed to this submission have done extensive behaviour change work over many decades in the area of waste minimisation.

We note the findings of successive Colmar Brunton Better Future surveys that show that waste-related issues greatly concern New Zealanders. We encourage the Commission to consider waste reduction an opportunity area for engaging the public in climate action.

Our organisations' work in behaviour change has also shown us that by and large most people do want to do the right thing and are often aware what the right choices are, but will often struggle to embrace these choices when our prevailing economic and social systems are set up to incentivise and prioritise wasteful, high emissions choices. Accordingly, we do believe that whilst behaviour change campaigns are important, Government's focus and resources need to be concentrated on resetting the environment in which we all operate, so that the best choices for our climate become the normal and most accessible choices. In this context, behaviour change campaigns are perhaps best focused on explaining why the Government is making particular regulatory and policy changes for our climate, rather than on trying to get people to behave against the current prevailing price and convenience signals.

20. Do you agree with Budget recommendation 5 on the rules for measuring progress? Is there anything we should change and why?

Support some of the actions

We understand that the production-based approach is the most feasible within the current UNFCCC regime. We agree that robust and accurate accounting is essential for setting targets, monitoring and evaluating progress. We think that the Commission should recommend the use of consumption-based emissions analysis to complement the formal use of production-based accounting. This would eliminate critical blind spots in the advice, recommendations and targets.

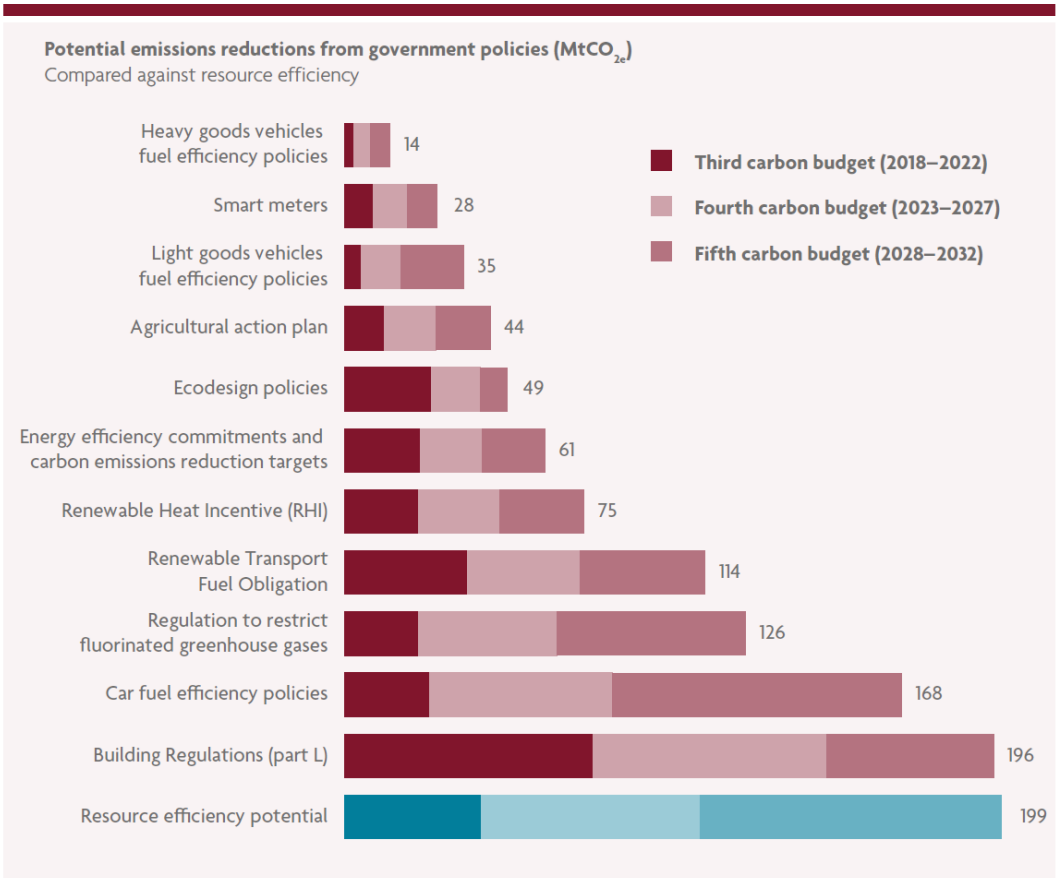
The Commission notes that choice of accounting regime has a big influence on which reduction activities are prioritised. We think the Commission's choice of accounting regime overlooks the critical role of zero waste, waste prevention and circular economy strategies in generating substantial reductions in GHG and biogenic methane emissions. Inorganic materials could be effectively targeted using policy interventions in the waste and resource efficiency sector, but these have been left out of the tool kit.

The Commission alludes to the power of zero waste strategies but they do not show up clearly in the body text nor the formal recommendations. This is out of line with principle i. - that the accounting framework should "seek to cover all material human caused emissions sources and sinks" (p.136). We believe the contributions of zero waste strategies would be better brought out through a consumption-based analysis. This type of data is already being gathered by Stats NZ and should be used to shine a light on the emissions generated across the supply, recovery and disposal chain. However, consumption emissions have been overlooked by the Commission in preparing its advice.

The marginalisation of zero waste and circular economy strategies in climate policy and analysis is the subject of a growing body of research locally and internationally.[39] This oversight is increasingly being addressed in overseas jurisdictions, given growing recognition that zero waste strategies like prevention, reuse and repair play a key role in reducing hefty

[39] Ballinger and Hogg (2015) *The Potential Contribution of Waste Management to a Low-Carbon Economy* (Bristol, UK: Prepared by Eunomia Research & Consulting for Zero Waste Europe). Retrieved from https://zerowasteeurope.eu/downloads/the-potential-contribution-of-waste-management-to-a-low-carbon-economy/;
Ellen MacArthur Foundation (2019) *Completing the Picture: How the Circular Economy Tackles Climate Change*. Retrieved from https://www.ellenmacarthurfoundation.org/publications/completing-the-picture-climate-change; Julie Hill, Patrick Mahon and Peter Maddox (2020) "How can a circular economy help us meet net zero?" *Environmental Scientist* February issue; Maggie Clarke (2 December 2020) "Consumption, Climate, Zero Waste, and the Green New Deal" (Presentation at the National Recycling Coalition's Zero Waste Conference 2020). Retrieved from https://nrcrecycles.org/2020-national-zero-waste-conference-webinar-recordings/; Maggie Clarke (2012) "The Importance of Zero Waste in Climate Action Plans" (Paper 2012-A-484-AWMA). Retrieved from http://www.maggieclarkeenvironmental.com/AWMA2012-The-Importance-of-Zero-Waste-in-Climate-Action-Plans-Paper-484-v.2.pdf; Brenda Platt, David Ciplet, Kate M Bailey and Eric Lombardi (2008) *Stop Trashing the Climate* (Institute for Local Self-Reliance, Eco-cycle and GAIA). Retrieved from https://ilsr.org/stop-trashing-the-climate/; Material Economics (2018) *The Circular Economy - A powerful force for climate mitigation: Transformative innovation for prosperous and low-carbon industry* (Stockholm: Material Economics Sverige AB). Retrieved from https://www.sitra.fi/en/publications/circular-economy-powerful-force-climate-mitigation/.

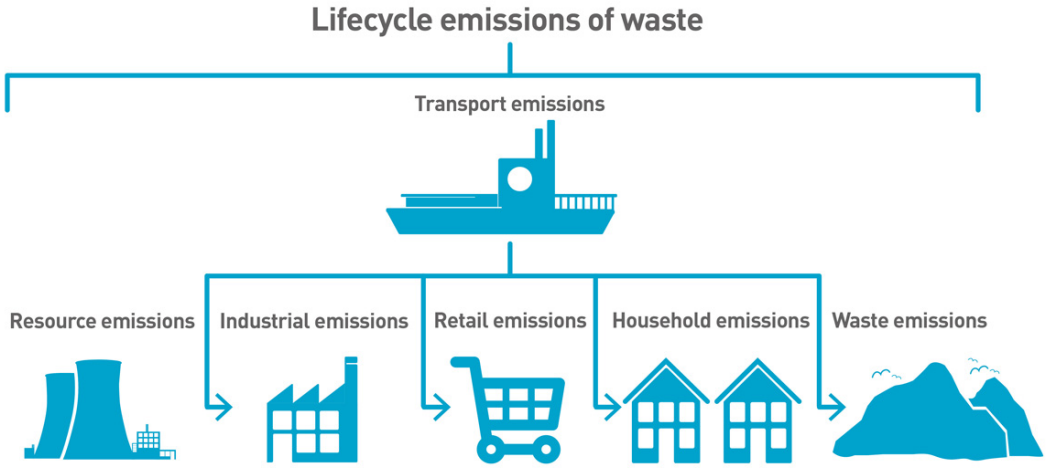
upstream emissions. Indeed, the emissions associated with the consumption of products can be close to half of a country's overall carbon footprint. Consumption-based analysis has begun to be used in the UK by WRAP; the table below shows how this approach can really highlight the GHG abatement potential of zero waste/circular economy strategies that strive to increase resource efficiency.



▲ **Figure 4. Resource efficiency has great potential to cut UK emissions (in million tonnes of CO_{2e}). (© Green Alliance)[9]**

Image taken from Hill, J., Mahon, P. and Maddox, P. (2020) "How can a circular economy help us meet net zero?" *Environmental Scientist* February issue, p.26.

The 'waste' advice seems to have been created by working backwards from the targets generated from the production-based accounting framework. The Commission states that *"A key purpose of the emissions reduction targets that countries set themselves is to drive actions to reduce human impacts on the climate."* The Commission's choice of a production-based approach means the story of action for the waste and resource efficiency sector has been artificially limited to biogenic methane emissions generated by organics in landfill. This traps policy responses for waste at the bottom of the waste hierarchy by focusing on the single task of diverting organics from landfill.



(Image taken from Scottish Carbon Metric section of website)[40]

The way 'waste' is framed obscures the contribution of the waste and resource efficiency sector to achieving emissions reductions. The Commission's framing analyses the climate impact from the perspective of the symptom (waste) rather than the solutions (zero waste/circular economy). The Commission's advice states that the majority of waste emissions come from biogenic methane produced by organic waste in landfill. This is only true within the narrow frame of reference created by the production-based analysis, which shines its light on what is coming out the end of the pipe from landfill.

In its advice the Commission alludes to the value of zero waste and circular economy strategies but it does not make the connection between emissions generated through production and consumption activities and the practical opportunities that already exist to reduce them. By taking a production-based accounting approach, the positive climate impact of waste prevention, reuse activities and recycling (which lead to a reduction in GHG emissions) either accrue to other sectors or are invisible to us because they are not factored into our national GHG inventory. Consequently, the narrative underlying the Commission's advice sends a message that activities higher up the waste hierarchy for anything other than organic waste are not important or relevant from a climate perspective. This is false and undermines the majority of the work that our sector undertakes as a means of comprehensively reducing environmental impacts.

We understand the reasons why the Commission believes production-based estimates should be used for the emissions reduction targets accounting rather than consumption-based estimates (pp.136-137). It is complicated; Stats NZ has just started to build the data set and it doesn't align with the accounting regimes being used in other places. However, we don't think the Commission fully appreciates the risk that a purely-production-based approach poses for critical decision making about waste policy and investment in Aotearoa over the next few years.

Using a production-based emissions approach without integrating a consumption-based emissions tool to fill the gaps creates three main problems:

[40] Image taken from Zero Waste Scotland "What is the Carbon Metric?" at https://www.zerowastescotland.org.uk/our-work/what-carbon-metric.

1) The advice is blind to all material streams except a narrow band of 'organics', and blind to the full spectrum of work that the waste and resource efficiency sector undertakes. Inorganic material streams are not mentioned. For example, the Commission's advice currently features little discussion of the carbon intensity of the construction and demolition industry, of textiles, or the impact of the throwaway approach to appliances and electronics. The advice does not mention plastic, despite the fact that 99% of all plastics are made from the highly carbon-intensive process of refining fossil fuels or unsustainable single use packaging.

   The significant impact that zero waste strategies can have for reducing GHG emissions, particularly of long-lived gases is left out of the conversation. All products contain materials and embodied energy. Zero waste and circular economy strategies reduce emissions by changing consumption patterns, buying habits and procurement processes.[41] For example:

   - Reusing, repairing and refurbishing to extending product life spans
   - Leasing and sharing models that limit the number of products in circulation at any one time eg. car sharing
   - Designing problematic or toxic materials out of the system
   - Replacing single use items with durable reusable options
   - Closed loop, high quality, transparent recycling systems.

2) The Commission's advice will divert finite funding away from key zero waste strategies towards a narrow portfolio of organic diversion activities. These wider zero waste activities will miss out on attention and investment because what is measured gets managed. Without a consumption-based analysis to frame monitoring and policy intervention in the waste and resource efficiency space, these activities will inevitably face de-prioritisation.

3) A pure production-based approach allows Aotearoa to offshore a significant proportion of its emissions reduction responsibilities given so much of what we consume is manufactured offshore and imported, making the production emissions associated with our consumption invisible on our national GHG inventory. In contrast, using the complementary consumption-based emissions approach would enable the issues of climate justice and global equity (discussed in the advice in Chapter 8, ss 8.4 and 8.10) to be addressed. Ultimately, we benefit from the purchase and use of imported products and should take at least some responsibility for their climate change impacts.

   The economy of Aotearoa has benefitted from lower costs of production and manufacture in developing countries, and lower prices for imports. We can support offshore mitigation in developing countries by taking more responsibility for these emissions. This is especially important if products are being manufactured by local brands and/or importers. As a wealthy, highly-developed nation it is important that we do our fair share to reduce global emissions.

Other countries are already using consumption based emissions analysis to support their

[41] These are recognised as promising strategies for incorporating consumption-based emissions into a production-based emissions baseline. See: Stavros Afionis et al. (Jan/Feb 2017) "Consumption-based carbon accounting: does it have a future?" *WIREs Climate Change*, vol. 8. pp. 13-14.

decision making and monitoring eg. the UK Climate Change Commission.[42] In Scotland the Government measures and reports annually on the country's carbon footprint. Scotland has also developed a Carbon Metric, which measures the whole of life impacts of Scotland's waste from resource extraction through to waste management, regardless of where in the world products were generated. Scotland sees climate change as a global problem and recognises that their responsibilities go beyond national borders.

We think the Commission's advice is weak in the Waste and Resource efficiency space. Incorporating consumption-based emissions analysis would enable policy interventions that target zero waste and circular economy strategies, and in turn reduce GHG emissions across the board.

21. Do you support our assessment of the country's NDC? Do you support our NDC recommendation?

Do not support (not ambitious enough)

We agree with the Commission's assessment that our current Nationally Determined Contribution is not ambitious enough to keep warming within 1.5 degrees.

We do not think the recommendations for the new NDC go far enough. We would like to see a more ambitious approach that clearly demonstrates our country's commitment to doing our Fair Share.

We don't think offshore mitigation should be used as a strategy to cover the gap between domestic mitigation and NDC obligations. We think that a strong commitment by the Government to waste prevention and building a circular economy where nothing is wasted and outputs from one part of the system become inputs for another would generate GHG and biogenic methane emissions reductions that have not been factored into the draft advice.

GHG emissions reductions from increasing circularity are positive spillover from 'waste' or resource use interventions that would show up as reductions in transport, heat industry and power and other sectoral accounting that is done on a production basis. A large proportion of our consumption related emissions are generated offshore, while these would not be reflected in emissions reduction accounting in Aotearoa they are real and would be appreciated by the planet.

We have read and support the comprehensive analysis outlined in the submission by **Lawyers for Climate Action NZ Inc** in relation to the NDC.

22. Do you support our recommendations on the form of the NDC?

Do not support (not ambitious enough)

See Q21

[42] UK Committee on Climate Change (UKCCC) (April 2013). "Reducing the UK's carbon footprint." London: UK Climate Change Committee. Retrieved from: https://www.theccc.org.uk/wp-content/uploads/2013/04/Reducing-carbon-footprint-report.pdf

23. Do you support our recommendations on reporting on and meeting the NDC? Is there anything we should change, and why?

Do not support (not ambitious enough)

See Q21

24. Do you support our assessment of the possible required reductions in biogenic methane emissions?

Somewhat support our assessment

We support the conclusion that biogenic methane emissions must be significantly reduced in order to avoid breaching 1.5℃ of global warming.

We have a particular interest in reducing biogenic methane emissions from landfills. We think it is useful to separate the challenges, issues and opportunities for reducing landfill emissions from those of agriculture. Biogenic methane emissions from landfills are about 12% of the total.

Some key regulatory and strategic opportunities to influence organics flows are coming up in the short term with the review of the Waste Minimisation Act 2008 and the 2010 New Zealand Waste Strategy. We need to use these to divert a large proportion of organics from landfill.

There are a number of ways that this material can be diverted before it reaches landfill. Using simple zero waste strategies like separation and processing at source, separate collections and composting would make reducing biogenic methane emissions from organic material in landfill a key contributor of change in this category by 2035.

The waste hierarchy is a useful tool for prioritising these. It is important to recognise that organics currently going into landfills, cleanfills and farm pits covers a wide range of specific types. These include food waste, green waste, fibre: paper, card, textiles, timber, composite boards, mixed materials like tetrapak, plastic laminated composite board, single-use packaging for consumer goods and takeaways as well as sewage sludge, farm manure/effluent, dead animals/livestock and by-products from food processing.

Food and green waste can be effectively managed through simple composting systems at the local and regional scale. Textiles can be sorted and diverted to reuse or reprocessing. Construction and demolition materials can be diverted for reuse.

We also need to consider global limits and prioritise actions that are protective and restorative. Topsoil is a critical global resource. In 2015 the UN Food and Agriculture Organisation estimated we had about 60 years of topsoil left.[43] This critical limit means we need to feed as much organic material back into soil through composting as possible to restore and regenerate soil fertility.

This is recognised in the advice under Consideration 3 (p. 176) which considers key factors

[43] Food and Agriculture Organisation of the United Nations (2015) *Status of the World's Soil Resources* (Rome: FAO). Retrieved from http://www.fao.org/documents/card/en/c/c6814873-efc3-41db-b7d3-2081a10ede50/.

and changes that may occur through to 2100. Section 9.4.3 *Other environmental challenges* specifically mentions soil health and soil erosion, both of which can be addressed by returning to the soil good quality compost that has been made from organic material that has been diverted from landfill.

Several countries have already successfully used existing systems and technologies to substantially reduce the amount of organic material going to landfill. We can do the same if we align goals, requirements, investment and practice at the national and local scales. It is important that the Commission becomes a strong advocate for maximising the amount of organic material being composted and returned to soil to support carbon sequestration as well as emissions reductions.

At the national level both the New Zealand Waste Strategy (2010) and the Waste Minimisation Act 2008 are being reviewed by MfE in 2021. One of the key priorities needs to be creating a pathway for diverting organics to return them to soils and avoid biogenic methane emissions from landfill. Signalling and implementing bans for the disposal of other organic material types to landfill will create an incentive to invest in alternative strategies for managing these.

We should

- Require households and enterprises to separate organic material so it can either be composted on-site, or go into clean stream collection systems and become feedstock for local and regional composting plants.
- Establish collection systems for this material so that enterprises and households can access collection services.
- Invest a proportion of the Waste Minimisation Fund in developing local and regional composting systems so there is infrastructure to process the material.
- Flag the intention to ban organic material from landfill in the medium term.
- Set clear and ambitious targets for diverting organics from landfill.
- Invest in raising awareness and behaviour change to support action

(See our answers to Q13, 18, 20 for more detail on biogenic methane)

APPENDIX A: Reference list to accompany the joint submission of the zero waste community

The relationship between zero waste/circular economy strategies and climate policy

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https://www.makethemostofwaste.co.nz/media/1534/building-out-waste.pdf

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https://knowledgeauckland.org.nz/publications/cost-benefit-analysis-of-construction-and-demolition-waste-diversion-from-landfill

BRANZ CO_2NSTRUCT
https://www.branz.co.nz/environment-zero-carbon-research/framework/branz-co2nstruct/ provides values for embodied greenhouse gas and energy for some construction materials

Concrete3 (2018) *Concrete Waste Minimisation Project, Wellington*
http://www.sustainableconcrete.org.nz/page/awards.aspx?news=14611&year=2018
Kaiwharawhara Point reclamation, which involved clean fill concrete from the port being stockpiled for processing into gravel and then returned for use in a range of purposes

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Infrastructure Sustainability Council of Australia (ISCA) rating system https://www.isca.org.au/is_ratings

MBIE Building for Climate Change framework https://www.mbie.govt.nz/building-and-energy/building/building-for-climate-change/ Includes providing an online modelling tool for use when designing Small Buildings

Nelson Tasman Climate Forum submission to the MBIE Building for Climate Change consultation https://storage.ning.com/topology/rest/1.0/file/get/8021688874?profile=original

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United Kingdom

Arup (2020) N*et Zero Carbon Buildings: Three Steps to Take Now - https://www.arup.com/perspectives/publications/research/section/net-zero-carbon-buildings-three-steps-to-take-now* pp6 Need to incentivise net carbon and take whole carbon lifecycle approach. Embodied carbon makes a significant contribution – between 30% and 70% of a typical building's total lifecycle emission

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Circle Economy, .Fabric, TNO, Gemeente Amsterdam (2016) *Circular Amsterdam: a vision and action agenda for the city and metropolitan area* (2016) p. 4, 40 Integration of circular economy principles in the construction of 70,000 new homes in Amsterdam before 2040 can reduce CO2 emissions by 500,000 tonnes per year, equivalent to 2.5% of the city's annual CO2 emissions.

Global

Ellen MacArthur Foundation (2019) *Making Buildings with New Techniques that Eliminate Waste and Support Material Cycles*. https://www.ellenmacarthurfoundation.org/assets/downloads/3_Buildings_Making_Mar19.pdf 11% of global energy related CO2 emissions can be attributed to the construction industry

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