

18-D-01568

s 9(2)(a)

Dear s 9(2)(a)

Thank you for your emails of 6 July, 1 August, 6 August and 6 September 2018, requesting the following information under the Official Information Act 1982 (the Act):

"All correspondence and documents sent to / from MfE officials to/from the Climate Change Ministers office related to the Zero Carbon Bill and associated discussion document "Ministry for the Environment. 2018. Our Climate Your Say: Consultation on the Zero Carbon Bill. Wellington: Ministry for the Environment."

I apologise for the lateness of our response to you.

As per your email of 6 September, we have interpreted your request to include all the various draft versions of that discussion document. We have not included information related to the discussion document which is purely administrative in nature, or which only mentions the discussion document in passing. We have also not included the various drafts of the Cabinet paper 'Public Consultation on the Zero Carbon Bill'.

As set out in the enclosed table, there are 23 documents in scope of your request. Four of these documents are being released to you in full, 17 documents are being released to you in part, with some of the information withheld under the following sections of the Act:

- s 9(2)(a) to protect the privacy of natural persons
- s 9(2)(f)(iv) to maintain the confidentiality of advice tendered by Ministers
- s 9(2)(g)(i) to maintain the effective conduct of public affairs through the free and frank expression of opinions
- s 9(2)(i) to enable a Minister of the Crown or any department or organisation holding the information to carry on, without prejudice or disadvantage, commercial activities.

Note that any out-of-scope material has also been removed.

The remaining two documents are publicly available at the following links:

- www.mfe.govt.nz/sites/default/files/media/Legislation/Cabinet%20paper/cabinet-paper-public-consultation-zero-carbon-bill.pdf
- www.mfe.govt.nz/sites/default/files/media/Legislation/Cabinet%20minute/cabinet-minute-public-consultation-zero-carbon-bill.pdf.

For context, the discussion document went through a process involving multiple drafts, authors and reviewers within a relatively short space of time, and so inevitably there are some differences in wording and content between the various drafts and the final document.



Ministry for the
Environment
Manatū Mō Te Taiao

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You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Sincerely

A handwritten signature in blue ink, appearing to read 'Janine Smith'.

Janine Smith
Acting Director, Climate Change

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the Official Information Act 1982

List of documents

No.	Date	Content	Decisions	OIA sections applied
1	18 April 2018	Email: For high-level feedback: 1st Draft of the ZCB discussion document	Released in full	n/a
1.1	18 April 2018	Attachment: Working draft discussion document (as at 18 April).pdf	Released in part	s 9(2)(f)(iv) s 9(2)(g)(i)
2	20 April 2018	Briefing: 18-B-04505 Draft Zero Carbon Bill Discussion Document (including Appendices 1-4)	Released in part	s 9(2)(f)(iv) s 9(2)(g)(i) s 9(2)(i)
3	4 May 2018	Briefing: 2015-B-04538 Draft Zero Carbon Bill Cabinet paper and Consultation Document (including Appendices A and B)	Released in part	s 9(2)(a) s 9(2)(f)(iv) s 9(2)(g)(i)
4	9 May 2018	Email: ZCB Minister's Foreword and Exec Summary - request for Word version	Released in part	s 9(2)(a) s 9(2)(g)(i)
4.1	9 May 2018	Attachment: 2018-B-04552 ZCB discussion document Foreword and exec summary.pdf (including Appendix 1)	Released in part	s 9(2)(g)(i)
5	11 May 2018	Emails: RE_ DRAFT Cabinet paper_ Public consultation on the Zero Carbon Bill	Released in part	s 9(2)(a)
6	16 May 2018	Emails: Re_ ZCB documents - comments Sarah	Released in part	s 9(2)(a)
6.1	16 May 2018	Attachment: ZCB cover note Sarah comments	Released in part	s 9(2)(a)
6.2	16 May 2018	Attachment: ZCB DD Sarah comments	Released in part	s 9(2)(g)(i)
7	18 May 2018	Briefing: 18-B-04588 V2 Draft Zero Carbon Bill discussion document and Cabinet paper (including Cabinet paper as Appendix 1, which in turn includes the draft discussion document as Appendix 1)	Released in part	s 9(2)(a) s 9(2)(g)(i)
8	21 May 2018	Email: FW_ Signed BN on ZCB discussion document + Minister's comments on the draft DD	Released in part	s 9(2)(a)
8.1	21 May 2018	Attachment: 21.05.2018_ZCB DD_comments JS.pdf	Released in part	s 9(2)(g)(i)
8.2	21 May 2018	Attachment: 2018-B-04588 Draft ZCB discussion document and Cab Paper.pdf (including Appendix 1)	Released in part	s 9(2)(a) s 9(2)(g)(i)
9	21 May 2018	Briefing: 2018-B-04598 Talking points for Cabinet Environment Energy and Climate Committee: Draft Zero Carbon Bill Discussion Document	Released in full	n/a
10	22 May 2018	Emails: RE_ Modelling wider benefits - Q from PM's office	Released in part	s 9(2)(a)
11	22 May 2018	Emails: FW_ Public Consultation on the Zero Carbon Bill	Released in part	s 9(2)(a)
12	25 May 2018	Email: FW_ Updated consultation document	Released in full	n/a
12.1	25 May 2018	Attachment: Zero Carbon Bill - Working Draft Discussion Document 24 May 2321.pdf	Released in part	s 9(2)(g)(i)

		[containing the Ministry's edits as sent to Minister Shaw's office]		
12.2	25 May 2018	Attachment: 18-B-04612 - Zero Carbon Bill Discussion Document and Cabinet paper.pdf	Released in full	n/a
13	29 May 2018	Emails: IN CONFIDENCE - feedback from meeting with Tsy and Minister Shaw (ZCB paper)	Released in part	s 9(2)(a) s 9(2)(g)(i)
14	28 May 2018	Cabinet paper: CAB-18-SUB-0247 Public Consultation on the Zero Carbon Bill	Publicly available	Available on our website at: www.mfe.govt.nz/sites/default/files/media/Legislation/Cabinet%20paper/cabinet-paper-public-consultation-zero-carbon-bill.pdf
15	28 May 2018	Cabinet minute: CAB-18-MIN-0247 Public Consultation on the Zero Carbon Bill	Publicly available	Available on our website at: www.mfe.govt.nz/sites/default/files/media/Legislation/Cabinet%20minute/cabinet-minute-public-consultation-zero-carbon-bill.pdf

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From: [Lucy Nie](#)
To: [Kay Harrison \(Parliament\)](#)
Cc: [Helen Plume](#); [James Fick](#); [Matt Pemberton](#); [Kimba Stainton-Herbert](#); [Rachel Hargreaves](#); [Janine Smith](#); [Bridget Fraser](#); [Craig Salmon](#); [Paul Alexander](#); [Dylan Muggeridge](#); [Nigel Searles](#); [Mark Storey](#); [Zoe Mack](#); [Lewis Stevens](#); [Laurette Siemonek](#); [Amelia Guy-Meakin](#); [David Rohan](#); [Tamara Linnhoff](#); [Mahesh Girvan](#)
Subject: For high-level feedback: 1st Draft of the ZCB discussion document
Date: Wednesday, 18 April 2018 4:11:08 PM
Attachments: [Working draft discussion document \(as at 18 April\).doc](#)

Afternoon Kay,

Thanks for offering to provide high-level feedback on the first draft of the ZCB discussion document (attached) before it goes in the bag on Friday.

We are still working on the Targets chapter and the ETS section of the Commission chapter, and are aiming to get these sections to you early tomorrow.

Thanks!

Kind regards,
Lucy

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Consultation on the Zero Carbon Bill

["call to action" tagline – tbd by Wonderlab]

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Disclaimer

Insert disclaimer text here if required.

Acknowledgements

Insert acknowledgements here if required.

This document may be cited as: Ministry for the Environment. **year**. *Title of publication*. Wellington: Ministry for the Environment.

Published in **month year** by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: **ISBN print version** (print)
ISBN online version (online)

Publication number: **ME xxxx**

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This document is available on the Ministry for the Environment website: www.mfe.govt.nz.



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Contents

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

This document ...

Finding your way around the document

- Part 1 – Introduction
 - Outlines ...
- Part 2 – Proposals for the Zero Carbon Bill
 - Sets out the proposals for the Bill, including...
- Part 3 – What happens next?
 - Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [\[insert link\]](#).
- You are not limited to answering only the questions that appear in the submission form. There is space in the submission form for additional comments. You can also attach additional pages to the form.
- Submissions must be lodged by [\[xx date\]](#).
- Submissions can be:
 - completed online at [\[insert link\]](#)
 - emailed to [\[insert address\]](#)
 - posted to [\[insert address\]](#)

For more information

- Visit the Online Engagement Portal at [\[insert link\]](#)
- Ask the Zero Carbon Bill team at [\[insert email address\]](#)
- Attend one of the events and hui being held around the country and online.

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Minister's Foreword

[Latitude to help draft]

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PART ONE: Introduction

» He mokopuna he tupuna. «

The need for a plan

JOINING THE GLOBAL TRANSITION

There is international consensus that climate change is happening and that greenhouse gases from human activities are the cause.

We have a global agreement amongst nearly 200 nations to act decisively and collectively to reduce our greenhouse gas emissions, and build our resilience to a changing climate.

Under increasing global pressure to change, those that innovate and lead will have an economic advantage.

We know we need to transition our economy in a way that is fair, just and timely to one that is more productive, resilient and innovative - and with fewer emissions. As New Zealanders, we need to make choices now about how far and how fast we go.

The shape of our future will be determined by how we respond to climate change

Climate change is one of the greatest challenges of our times. Already, we are seeing changes in wind and sea current patterns, storm tracks, the occurrence of droughts and frosts and the frequency of heavy rainfall events, as well as rising temperatures.

The impacts of climate change in New Zealand will become more pronounced as time goes on. These will be felt across our ecosystems, water supply, infrastructure, health, biosecurity, businesses and industries. Climate change will impact regions¹ in different ways, but it will affect all New Zealanders, and how we live, work and travel.

Most of New Zealand's major urban centres and the majority of our population are located on the coast or floodplains of major rivers. Many sites of significance to Māori, mahinga kai rohe and wāhi tapu sites are in low-lying or coastal areas. Our communities, homes, and infrastructure are exposed to flooding, sea-level rise, storm surge and inundation from rising ground water levels. We are already seeing more damage and disruption as a result of more frequent and more intense extreme weather events, and we can expect this to increase in scale and magnitude.

We need to take more ambitious action now to set us on a path to reducing our emissions, and prepare as a country for the climate change impacts that New Zealand is facing – now and in the future.

¹ See more on the likely impacts by region at the Ministry for the Environment's website at <http://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region>.

Commented [LN1]: Key outstanding TBAs:
• To consult with ILG on iwi perspective (week of 23 April)
• Ed/Tamara/Paul to provide economic impacts
• Work with SBC and EECA on examples

QUICK FACTS: WHAT IS CLIMATE CHANGE?

Earth's atmosphere is made up a large amount of nitrogen (78%), oxygen (21%) and a small percentage of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases act like a blanket around the Earth. They trap warmth from the sun and make life on Earth possible. Without them, too much heat would escape and the surface of the planet would freeze. However, increasing the concentration of greenhouse gases in the atmosphere traps more heat and causes the climate to change.

Over the past 150 years there has been a marked and growing increase in greenhouse gas producing activities such as burning fossil fuels for energy and farming for food production. These human-induced activities are increasing the level of emissions in our atmosphere and causing the Earth to heat up at an unprecedented rate. At a minimum, because of the amount of carbon dioxide already in our atmosphere and its ability to trap heat for centuries, we will face at least 1 degree global temperature rise by xx. The world could face severe, pervasive and irreversible impacts if this temperature rise is not kept to within 2 degrees. s 9(2)(g)(i)

New Zealand's emissions are too high

Although we contribute a only small amount of total global emissions, we are currently ranked the sixth highest in the Organisation for Economic Co-operation and Development (OECD) for emissions per person.

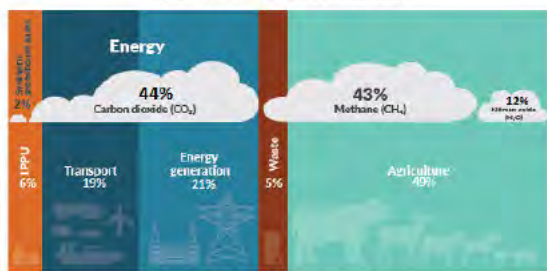
We produce almost 20% more emissions² than we did in 1990. This is mainly as a result of an expanded dairy industry, with dairy cattle numbers doubling between 1990 and 2016, as well as an increase of cars and trucks on the roads (increase by 128.9% and 84.4% respectively). Our peak emissions year was in 2006, but since then there have only been small reductions. There is also a lack of a clear strategy to help drive reductions in the future.

² This includes emissions from ... but doesn't include offsets (including from forestry).

WHERE ARE OUR EMISSIONS COMING FROM?

Our agriculture and energy sectors are the two largest contributors to New Zealand's total emissions (see Figure 1). The biggest emission sources for our agriculture sector are methane (from ruminants) and nitrous oxide (from urine on pastoral soils, and increased fertiliser use). The biggest emission source for the energy sector is carbon dioxide from energy generation and transport. However there are also interconnections between sectors that we do not traditionally report on. For example, the built environment makes up around 15% of New Zealand's emissions consisting of electricity production, waste, and production of building and road materials.

Figure 1: New Zealand's emissions profile in 2016



Source: New Zealand Greenhouse Gas Inventory 2010-2016, Ministry for the Environment.
Notes: - Percentage may not add up to 100%, as they are rounded to the nearest percent.
- Energy sector consists of transport and energy generation.

Our emissions profile is unusual, relative to much of the rest of the world. We have an economy that is largely based on primary industries, and our agriculture sector is on average four times bigger than our peers in the OECD.³ Moreover, while many developed countries' primary focus has been reducing carbon dioxide emissions from electricity generation, most of New Zealand's electricity (about 80%) is generated from renewable sources. These circumstances mean we face different challenges and opportunities for reducing our emissions.

New Zealand is a global player, and the global conversation has shifted from whether to act on climate change to how much each country can help

In 2015, 196 countries, including New Zealand, met in Paris to agree on a global response to climate change. Countries decided under the Paris Agreement to keep global temperature rise below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius. To achieve this, the world must reach global net zero greenhouse gas emissions⁴ by the second half of the century.

s 9(2)(g)(i)

³ Reference

⁴ Define

The time to act is now

CASE STUDY: WHAT COULD OUR FUTURE LOOK LIKE?

[Alicia Ryan working on diagram to illustrate impacts in future, possibly a landscape scene showing two potential versions of NZ – one a 3 degree future and one a BAU future. Note: uses data from 2034/2030 NZMA modelling]

Continuing emissions-intensive products and sectors may generate more costs than they do benefits for New Zealand in the long-run, with some figures estimating the costs to the economy at \$x billion, approximately xx% of our GDP.⁵

Taking action now will make a big difference to future impacts and may reduce long term costs. The sooner we act, the more time and options we will have for the transition to a net zero emissions, climate resilient economy with less disruption on communities. If we do not act now, our transition will be more abrupt.⁶

The world is heading in a low emissions direction and it's important we keep up. As countries take steps to reduce their own emissions, we can expect global demand to increase the need for clean technology and low-emissions food, fibre, and other materials. We need to remain competitive by thinking about key challenges and how we can be ahead of the game.

The opportunities of an economy where we can enhance our prosperity in a way that is decoupled from reliance on emissions-intensive industries are numerous. For example, climate policies are expected to provide benefits to the health sector through reduced rates of non-communicable diseases and improved air quality. We also know that climate action can provide significant innovation benefits, with research showing a strong correlation between innovation in low-emission technologies and the stringency of climate change policy.⁷ The increased innovation activity from climate action also can generate benefits for other parts of the economy, where new technologies and ideas are passed to other sectors.⁸

The Government's broader economic strategy complements the need to reduce our emissions. To improve our economy we must lift our productivity and diversify our exports to be knowledge-intensive and high-value. Data insights from Productivity Commission reveal our recent GDP growth has been driven by adding more people to the economy, and people working more hours, and we are growing employment in low-productivity industries⁹. We're working harder not smarter. Aligning climate and economic growth policy will boost our growth – the OECD suggests this shift could improve GDP by 1%.

Commented [LN2]: TBC. work with MBIE and TSY on this. Also note that Maori economy drives at 5% GPG growth rate.

This will require significant changes across the economy

The world is changing at an increasing speed. Over the next 30 years we will see further and increasing disruption from digital and other technologies, changes in what we eat and how and where we work, in addition to the anticipated impacts due to climate change.

These changes present opportunities, but could also have significant negative impacts on particular sectors.

[insert economic impacts, specify potential trade-offs for different sectors – TBA from Tamara/Paul/Ed]

⁵ Reference

⁶ World Bank, 2015.

⁷ Dechezlepretre, A., Martin, R. and Bassi, S., 2016. Climate change policy, innovation and growth. Grantham Research Institute on Climate Change and the Environment, Policy Brief.

⁸ Dechezlepretre, A., Martin, R. and Mohnen, M., 2013. Knowledge spillovers from clean and dirty technologies: A patent citation analysis. Grantham research Institute in Climate Change and the Environment Working Paper no. 135.

⁹ Productivity Commission 2016.

In shifting to a lower-emissions and resilient economy, businesses in emissions-intensive industries will face significant choices over the coming years. Choices will depend on individual and industry circumstances. Some businesses and industries can adjust more easily than others and still make a profit. s 9(2)(g)(i)

CASE STUDY: WHAT KINDS OF CHANGES WOULD WE SEE?

The policies we develop, and the changes we could see across different sectors, will depend largely on the speed and form of technological change.

If technological change is slow, then New Zealand will need ambitious policy action to reduce our emissions. Under this futures scenario, we would likely rely on options that are already available, such as incentivising land use change, and expanding forestry. Government would also need to provide greater incentives to support public and active transport, and the uptake of electric vehicles.

Another future is one which features rapid technological change that disrupts current economic structures. This could see new technologies and products creating new markets and reducing demand in existing ones. Under this futures scenario, as people's preferences change both at home and overseas, we might see an expansion of horticulture and reductions in dairy. Similarly, a rapid decrease in the cost of renewable energy could also lead to less demand for coal and gas generation.

A third future features rapid technological change that stabilises existing industry structures and reduces the need for large shifts in economic activity. For example, new medicine vaccines and nitrogen inhibitors would mean

We do not know exactly how technology and other factors will change over time, but we do know we must adjust. We will still need to plant trees, make the most of our abundant renewable electricity, support the uptake of new technologies, and get the settings for urban design right. s 9(2)(g)(i)

To thrive, our economy will need to diversify, support continued international competitiveness in areas where we're ahead of the curve, and mitigate against economic shocks.

Signalling where we want to be in 2050 will act as the necessary trigger to shift the economy and society. Providing lead-in time allows people to make informed investment choices about the future, and ensures we have the right training and investment for new jobs and we can support those affected. Taking a planned and adaptive approach now means we can actively manage progress rather than delaying action until it is even harder.

An effective transition will require us to think and act long-term

An effective transition will require us to think and act long-term. We also need to have the right 'architecture' in place to keep us on track and support action.

All parts of society, but especially businesses, need Government to agree the direction of travel so they can trust that putting their money into climate-friendly activities will be a good investment. While policy tweaks may be necessary to respond to changing circumstances (e.g. advances in science and innovation), and are an appropriate check and balance of any multi-party democracy, it is important that the direction of travel is stable across governments to preserve long-term investment signals.

¹⁰ Productivity Commission, Issues Paper.

To date, New Zealand's legal and institutional frameworks have not delivered the long-term direction, policy stability, and predictability required for a smooth and efficient transition to a low-emissions, climate resilient economy. There are a number of ways we can improve our current architecture so we are better placed to address the challenges and opportunities of climate change:

- **Having a domestic-focussed emissions reduction goal.** This will enable New Zealanders to understand where we as a country are headed. It will also provide a clear view of the nature and pace of the change we are trying to achieve.
- **Establishing long-term political commitment and accountability through our laws and institutions.** This is essential to set up for success in the longer term, and plays an important role in keeping New Zealand on track towards our longer term goals. Done well, this can provide insulation from short-term political pressures, while retaining flexibility for future governments to implement their policies within a transparent framework.
- **Aligning policies across Government.** This will ensure that we reduce emissions and build our resilience in a coherent way.

Enduring institutional arrangements for climate change, and a legislative framework for action, will help ensure this transition endures beyond politics.

What the Zero Carbon Bill will do

The Zero Carbon Bill will set up the architecture for a just transition to a productive, sustainable and climate resilient economy

In what will eventually be a binding piece of law, the Zero Carbon Act will set out how New Zealand plans to get to a low emissions, climate resilient future. The Bill will be guided by the three fundamental pillars of Government's overarching vision for climate change action:

- **Taking leadership at home and internationally,** recognising that New Zealand's best strategy to catalyse the global response to climate change and defend our interests lies in influencing the global response.
- **Building a productive, sustainable and climate-resilient economy,** by using the right levers to decouple emissions from growth and diversify our economy to put New Zealand on the path towards greater long-term sustainability and prosperity.
- **Creating a just and inclusive society,** by managing the pace of the transition and the shift to new jobs in lower emissions sectors, and by supporting regions and communities affected by transitional policies and those affected by the damaging impacts of climate change.

The Bill proposes to:

- **Signal New Zealand's long-term emission reductions target and how we will meet it:** by setting a new emissions reduction target for 2050 and the stepping stones ('emissions budgets') to get there.
- **Plan for a changing climate:** by in place critical elements of New Zealand's adaptation toolkit (including the requirement for New Zealand to have a National Adaptation Plan in which prioritised actions are informed by regularly updated National Climate Change Risk Assessment).
- **Put in place the right institutional framework and commitment device by:**
 - Establishing a Climate Change Commission to provide independent expert advice, and hold Governments to account to our long-term goals
 - Requiring Government to respond with a coherent strategy and mix of policies to keep us on track to meet our long-term goals

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- o Ensuring that we review and monitor progress, based on robust evidence.

More information on these components can be found in later chapters of this document.

Your feedback on these proposals will help inform recommendations to Cabinet and next steps. By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

We invite you to be part of this critical conversation.

WHAT CAN YOU DO NOW?

Individual action / Positive change from businesses

- agriculture investments [Prid Carbon report]
- industrial scale heat pumps replacing fossil fuel use: Heiler's and Verkerke's Achromaton, meat & hospitals [EECA example]
- some SBE companies setting voluntary carbon targets [EECA examples]

Government enabling climate action

A new initiative, the Green Investment Fund, will provide public funding (and encourage private funding) to invest in projects and businesses that will reduce climate pollution and increase New Zealand's resilience to the changing climate.

PART TWO: Proposals

A new 2050 target

Commented [LN3]: TBA tomorrow

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Emissions budgets

SUMMARY

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

The Zero Carbon Bill proposes to put into law a mechanism for setting emissions budgets.

- Emission budgets would specify the allowable volume of emissions for a 5 year period.
- Emissions budgets would be set for a minimum of ten years in advance (i.e. two of 5 year emissions budget periods), and a maximum 15 years in advance (i.e. 3 budget periods).
- The third budget could be revised within a threshold to allow for changes in the economy and technology.
- Some 'banking and borrowing' would be allowed between emission budgets periods (within limits).
- The Commission could have a role in advising Government on whether a future emissions budget should be revised. They could also provide expert advice and a recommendations on the upper limit of international units that could be used in a budget period, based on available evidence.
- The ETS is highly complementary to the emission budgets because the ETS annual volumes can provide a smoothing function between emissions budget periods.
- The emissions budgets are compatible with New Zealand's international commitments. While international commitments may be slightly different to emissions budgets for the same period (as the tools have different purposes), the two targets would be closely related and reconcilable.

We are seeking your views on:

- whether we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target
- key elements of the proposal (including the look-ahead period of 10-15 years, the five year duration of each budget, annual monitoring and comprehensive review every five years)
- whether emissions budgets can be revised
- whether 'banking and borrowing' should be allowed between emissions budgets periods
- any other comments in relation to the need for, or design of, emissions budgets.

The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

We need stepping stones to guide progress towards our 2050 target

The path towards the long-term target can take many different forms (see Figure 1). A useful approach is to put in place stepping stones that will guide progress towards our 2050 target. This can help:

- provide more certainty about the transition path
- monitor progress in reducing emissions and help ensure the country is 'on-track'
- ensure the Government makes consistent progress towards our 2050 target
- avoid the need for abrupt changes in the transition path.

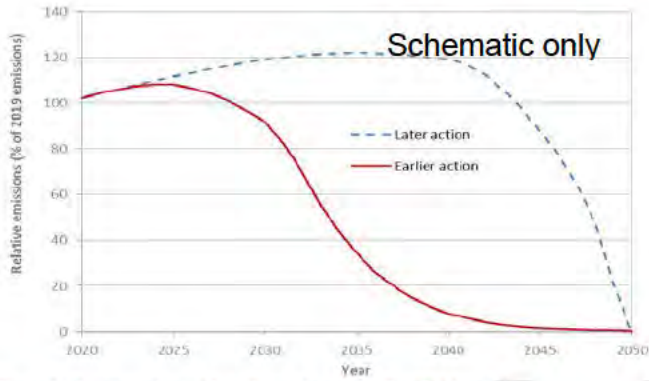


Figure 1 - Overview of possible pathways to achieve the 2050 target¹¹.

Stepping stones can be put in place in different ways.

A trajectory approach outlines the emission reduction pathway from 2020 out to net zero emissions (see Figure 2). This could be done in 'staged trajectory' fashion, similar to the approach adopted by the European Union, which takes an almost straight-line approach from 2030 (with 20% emission reductions required in the 2030-2040 and 2040-2050 periods respectively).

While this approach gives a high degree of certainty for when emission reductions need to occur, reducing emissions every year by an equal amount ignores the difficulty and cost of emission reductions at different points in time and assumes costs at all points of time as equal. For example, technology advancements and reducing costs could prompt earlier action, while a lack of technological advancements or regional economy issues may require greater emission reductions to be made in the future.



Figure 2 - Schematic of the European Union trajectory approach to emission reduction path setting.

'Emissions budgets' are another way to set the path towards long-term emission reduction targets. 'Emissions budgets' are essentially a fixed amount of emissions that can be emitted at a national level over a certain time period. Each emissions budget could be set some years in advance, and vary in size. This

¹¹ Text on how the graph is indicative for illustrative purposes

approach has been taken by at least ten countries¹² and at least 12 states/provinces in the United States, Canada and Australia.¹³ Generally, emissions budgets have been preferred as they offer a balance between predictability of emission reductions in the medium term and flexibility to allow for changes in technology and the economy.

The Zero Carbon Bill could provide a legislative mechanism for setting emissions budgets

The Zero Carbon Bill proposes to put into law a mechanism for setting emissions budgets, but will not specify what the level (or quota) of each emissions budget will be.

At a minimum (and apart from the roles and responsibilities discussed in chapter X), we expect that this mechanism will set out:

- how far in advance emissions budgets should be set
- factors the Commission is required to consider when advising on emissions budgets
- the duration of each emissions budget
- whether emissions budgets can be reviewed (and if so, how)
- accountability mechanisms that apply if emissions budgets are not met

Other considerations include:

- whether emissions reductions could be banked or carried over from one budget to the next
- the relationship between emission budgets, our international climate change commitment and the New Zealand Emission Trading Scheme (NZ ETS).

This section will cover these design aspects of the emissions budgets mechanism. As set out in chapter X, roles and responsibilities are expected to be similar to the UK approach whereby:

- the Climate Commission has a role to provide expert advice and recommendations
- the Government then sets emissions budgets based on those recommendations (with clear parameters to adhere to those recommendations unless there are clear reasons not to that would need to be transparently explained)
- the Climate Commission has a monitoring and review role.

There are a number of trade-offs that impact on the design of the emissions budget mechanism. These considerations will impact on key components of the emissions budgets mechanism, and include:

- **Predictability versus flexibility:** Emissions budgets require the right balance of predictability and flexibility. On one hand, they need to provide a degree of predictability around the short and medium-term abatement task so businesses and decision-makers can plan ahead. On the other hand, they also need to provide enough flexibility to account for technological change, innovation opportunities, economic performance, and changes in the global situation (e.g. oil prices, improved climate science, and international ambition to reduce emissions).
- **Accountability versus administrative burden:** It will be important to ensure that progress towards meeting emissions budgets is open to transparent review. There is a balance to strike between regular monitoring and review (for transparency and accountability), and the administrative cost (and potential unpredictability) through too regular a review cycle. A further challenge here is the delay caused by collecting and reconciling emissions data, which causes a time lag in the data available for monitoring emissions.

¹² This includes: the United Kingdom, Denmark, Finland, France, Ireland, Mexico, Norway, Scotland, Sweden and Switzerland.

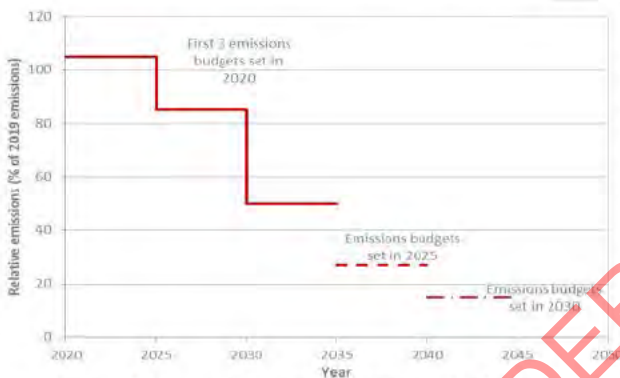
¹³ This includes: California, Connecticut, Hawaii, Massachusetts, Minnesota and Washington, (USA); Alberta, British Columbia, and Ontario (Canada); Australian Capital Territory, South Australia and Victoria (Australia).

How far in advance should emissions budgets be set?

A key design choice for emissions budgets is how far into the future they are set. Too short a period provides less predictability for investors and decision makers. Too long a period (over 15 years) makes it difficult to reliably predict how the economy and technology will change in the future.

As a point of reference, it takes roughly five to ten years from consenting and detailed design to final construction of major infrastructure. Similarly, the life-time of expensive infrastructure (such as industrial boilers and electricity power stations) will typically be more than 25 years. This suggests that a 'look-ahead' period of greater than 10 years is desirable to reduce investor uncertainty. However, we also know that it is also very hard to predict the effectiveness and costs of technological advancements beyond a 15 year period into the future.

For these reasons, our proposed approach is to set a minimum 'look-ahead' timeframe of about 10 years and



An initial set of three emission budgets of five year durations could be set in 2020 providing coverage out to 2035. This would provide abatement predictability for a minimum of 10 years (two budgets) and maximum of 15 years (three budgets). Subsequent budgets could be set in five year intervals, with the fourth set in 2025.

maximum of 15 years. We see a 10 to 15 year 'look-ahead' period as a good compromise between giving certainty to businesses and investors, while also recognising the uncertainty involved in assessing emission reduction costs beyond 15 years. This is shown in Figure 3 below.

Figure 3 - Overview of the emissions budgets process

This method of setting emissions budgets depoliticises the process. The government of the day will not be able to set or influence the budget for their political term as it is set ten years beforehand.

How long should each emissions budget be for, and when should they be reviewed?

The length of individual emissions budgets is a trade-off between the flexibility provided by having more budget periods, and the additional administrative cost of setting and monitoring more frequent budgets.

The current Parliamentary Commissioner for the Environment has recommended emissions budgets to be developed and adopted every six years, together with "the requirement for an interim update and review of policy implementation by the Government three years after each budget is adopted."¹⁴ This approach has the potential advantage of allowing a new government to take stock of, and ownership of, progress and next steps. However, it would create considerable administrative burden – as a comparison, the NZ ETS reviews

¹⁴ March 2018, "A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and beyond", Parliamentary Commissioner for the Environment.

are resource intensive, taking approximately a year at minimum to complete. It would also lead to lower medium-term predictability for businesses and individuals.

We consider that a five-year emission budget duration with a five-year review cycle is a good compromise. The timing of emission budget review would happen at the same time as the emission budgets are set. It is longer than our current electoral cycle, and balances administrative costs with flexibility to tailor budgets. It can also help to align the timing of emissions budgets with other policy instruments, for example the setting of Nationally Determined Contributions (NDC) under the Paris Agreement (discussed in more detail in a later section of this chapter).

How should emissions budgets be monitored?

Monitoring of emissions is required to determine whether New Zealand is on track (or not) to meet a particular emission budget.

The New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations) and could be used for this purpose. While this is the most accurate data available, it is (at best) approximately fifteen months old because of the time it takes to collect and process the data that feeds into this Inventory.

Less accurate emissions data may be available on a shorter timeframe. For example, the Energy and Industrial Process and Product Use (IPPU) emissions could be updated annually with data that is less than six months old. It is important to note that this type of provisional data may not be available for all sectors. But it is expected that both monitoring processes above are likely to have a role in determining whether New Zealand is on track (or not) to meet a particular emission budget.

We propose that an annual report be produced to show how New Zealand is tracking towards the emission budget.

Can emissions budgets be revised?

Emission budgets are set more than a decade in advance, and the further out we look i.e. beyond 10 years, the less certain the abatement costs. There may be value in having some flexibility (e.g. revising budgets). Allowing emissions budgets to be revised in some circumstances could:

- minimise the risk of overly conservative budgets being set
- allow for a more adaptive approach that can respond to changing circumstances (e.g. unanticipated technological innovation).

To minimise uncertainty for investors, this ability to revise future budgets needs to be constrained by specific conditions. For example, the Bill could set out that any emission budget period that has begun, or that overlaps with the term of the government of the day, cannot be modified. It could also provide a maximum level that changes can be made (e.g. no more than a deviation of 15%). The process to review the third budget will ensure that the evidence on costs is reassessed periodically and should mitigate the risk of unexpected cost spikes.

Commented [LN4]:

The following review text might go better in the targets section: Under the UK model, the Government has the ability to review and amend its 2050 target in light of significant developments in climate science or in international law or policy. If its 2050 target were amended, the UK Government could seek agreement from Parliament to amend the level of carbon budgets. However, UK Government would be required to seek advice from its Climate Change Committee, and follow a rigorous Parliamentary process in order to amend a particular budget.¹

We see a similar review function under the Zero Carbon Act. An emissions budget may be reviewed and revised under the following exceptional circumstances:

• significant developments in climate science or international law or policy

s 9(2)(g)(i)

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Figure 4 - Overview of the revision of future emission budgets

Can emissions reductions be banked or borrowed from one budget to the next?

It is not necessary to precisely meet emissions budgets. As long as the emission reduction trajectory is aligned with the path set out by the three budgets, any small discrepancies between emission budgets and actual emissions make minimal difference in the short term.

If a strong compliance regime was implemented, this could cause governments to try to exactly meet a budget, even if this comes at a high cost. To use a hypothetical example, the government of the day could enforce 'car-less days' for a few months in order to meet an emission budget. This would lead to significant costs and disruptions to people's lives, and minimal benefits with reducing emissions at the time rather than six months later.

Given the perverse outcomes that can result from very strict adherence to emissions budgets, we propose to introduce a predetermined 'leniency threshold' (e.g. of 2%). Any shortfall in abatement would still be reported on (and effectively borrowed from the next emissions budget), but the accountability mechanisms would not apply unless the budget was missed by more than the leniency threshold.

Conversely, if more emissions reductions are achieved than the emissions budget required, then the excess abatement would be carried over to the next emission budget.

How much should the focus be on reducing our emissions within New Zealand?

An important decision for any Government is the choice between reducing emissions in New Zealand (i.e. domestic abatement) and the purchasing emissions reductions from overseas (i.e. through the use of international emission reduction units). This Government has indicated that it will place primary reliance on reducing emissions in New Zealand in order to reach our 2050 target. However, the ability to purchase international units may provide an important 'safety valve' over the coming decades to manage higher than expected abatement costs.

Instead of allowing a blanket use of international units, or specifying that all budgets must be met entirely through domestic emissions reductions, the Climate Change Commission could be tasked with providing expert advice and recommendations on the upper limit of international units that could be used within a budget period (based on the available evidence at the time). This would be similar to the approach taken in the UK, where the UK Climate Commission has recommended that no international units could be used for the first four carbon budgets and a maximum of 2.5% of the fifth budget could be met by international units.

As with the UK example, the government of the day would be required to explain its decision if it deviates from the advice and recommendations of the Commission (see [chapter x](#)).

How would emissions budgets align with the New Zealand Emissions Trading Scheme (NZ ETS)?

The NZ ETS puts a price on greenhouse gas emissions and is the Government's principal policy response to climate change. This price on emissions is intended to create a financial incentive across all relevant parts of the economy for investment in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission units (NZUs) as their trees grow and absorb carbon dioxide.

Therefore, emissions budgets and the NZ ETS need to be compatible. This is easily achieved, with the emissions budgets being a key input in setting the number of NZUs available within the emission budget period.

Not only can the NZ ETS and emissions budgets be compatible, they can be highly complementary. The annual NZU limits (see Figure 3 below) would usefully provide a smoothing function across emissions budget periods, which would help minimise changes across emissions budgets periods.¹⁵



This diagram shows how the NZ ETS can provide a useful smoothing function across the boundaries of emission budgets.

Figure 5 - The annual ETS unit volumes can provide smoothing across emissions budgets periods.

How would emissions budgets align with our international commitments?

New Zealand ratified the Paris Agreement in October 2016 and committed to reducing our emissions to 30 percent below 2005 levels by 2030. This commitment is our first Nationally Determined Contribution (NDC) under the Paris Agreement, and covers the 2021 – 2030 period. New Zealand's next NDC will need to be set in 2025 in either five or ten year increments. This is compatible with the proposed five year domestic emissions budget periods.

¹⁵ A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

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Domestic emissions budgets and international NDCs have different purposes and do not need to be exactly the same. Importantly, domestic emissions budgets could have some flexibility (e.g. the ability to be revised up or down) whereas NDCs cannot be revised down.

We expect domestic emissions budgets to generally be more ambitious than NDCs because there will be different consequences if the domestic emissions budgets are not achieved. A more risk-averse approach may be taken to setting NDCs, where New Zealand's global reputation could be affected.

While emissions budgets do not need to be wholly aligned with NDCs, it will be useful for future domestic emissions budgets and international NDCs to inform each other.

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The adaptation toolkit

SUMMARY

The Zero Carbon Bill will help New Zealand adapt to the impacts of climate change.

- Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change.
- Adaptation is as an essential part of the climate change policy agenda, because of the nationwide effects of climate change.
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.
- We need some core adaptation provisions in law to ensure we manage these risks in a systematic way. The proposed provisions include:
 - o a National Climate Change Risk Assessment
 - o a National Adaptation Plan
 - o regular review of progress towards implementing the National Adaptation Plan, and
 - o a reporting power under which specified organisations regularly report on what they are doing to prepare for climate change impacts.

We are seeking your views on:

- the parameters, scope and scale of each of the adaptation provisions the respective roles of central government and the Climate Change Commission
- the respective roles of central government and the Climate Change Commission.

The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

We need to ensure New Zealand is resilient to climate change impacts

In the last 100 years, New Zealand's average temperature has risen by 1 degree, and seas have risen around 14-22 cm. The impacts that these and other changes to our climate and oceans have pose a number of risks to communities, human health, infrastructure, the natural environment, culture and the economy.

The mid-range projected sea-level rise over the next 50 years is 30 cm. The November 2015 report by the Parliamentary Commissioner for the Environment (PCE) *'Preparing New Zealand for Rising Seas: Certainty and Uncertainty'* indicated that the cost of replacing every building situated within 0.5 metres of the spring high tide mark is \$3 billion. Replacing every building within 1.5 metres of the spring high tide mark would cost \$19 billion.

We can also expect to see more damage and disruption to assets and critical infrastructure with more frequent and more intense extreme weather events. Over the last 10 years the costs of weather events to the land transport network have increased from about \$20 million per annum to over \$90 million per annum.

The proposals in the adaptation toolkit have been designed to contribute to achieving a productive, sustainable and climate resilient economy (one of the core outcomes of the overall climate change agenda).

We need to start planning for adaptation now

As well as taking action to reduce emissions, New Zealand must plan for and take action on climate change adaptation, and we have signalled we will do this, along with many other countries, by ratifying the Paris Agreement.

In 2016, Government established a Climate Change Adaptation Technical Working Group (CCATWG). Its purpose was to provide advice on building New Zealand's resilience to the effects of climate change while sustainably growing our economy. The CCATWG's Stocktake Report¹⁶ identified the actions New Zealand are already taking to adapt as well as gaps and barriers which could potentially increase our exposure to climate risks.

The Group's Final Report was publicly released in May 2018. Building on the findings of the Stocktake Report, it identifies a series of actions for New Zealand to increase resilience and adapt to climate change.

The Zero Carbon Bill will help New Zealand adapt to the impacts of climate change

The Zero Carbon Bill will provide a legislative mechanism for some aspects of national adaptation action. Not all adaptation action required to achieve a climate-resilient economy is proposed here. We consider the following aspects are appropriate for this piece of legislation.

1. a regularly updated National Climate Change Risk Assessment
2. a regularly updated National Adaptation Plan in which prioritised actions are informed by the risk assessment
3. regular review of progress towards implementing the National Adaptation Plan
4. a reporting power under which specified organisations regularly report on what they are doing to prepare for climate change impacts.

The Bill will also set out:

- who updates the National Climate Change Risk Assessment and National Adaptation Plan, and when
- who reviews the National Adaptation Plan, and when
- who determines which organisations are subject to the reporting power and when, whether this is mandatory or voluntary, and who reviews the reports.

CASE STUDY: ADAPTATION IN THE UK CLIMATE CHANGE ACT 2008

The above proposals are similar to the adaptation policy settings of the UK Climate Change Act 2008.

Part 4 of the UK Climate Change Act puts in place a policy framework to promote adaptation action, consisting of:

- The UK Climate Change Risk Assessment (CCRA) – a five yearly assessment of the major risks and opportunities from climate change to the UK
- The National Adaptation Programme (NAP) – the Government's strategy to address the main risks and opportunities as identified by the CCRA. Also produced every five years. Progress is reported back to Parliament every two years
- The UK Adaptation Reporting Power (ARP) – requires public service organisations to produce reports on what they are doing to adapt to climate change.

¹⁶ <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

What is the National Climate Change Risk Assessment and what could it cover?

Climate change exacerbates existing risks and creates new risks (IPCC 2014). Understanding how significant these risks will be for New Zealanders and how these will change over time is essential for a climate resilient New Zealand.

At the moment, there is no nationally consistent understanding of risk, exposure and vulnerability to climate change. Information in relation to some climate risks (e.g. sea level rise) is reasonably well developed although regionally inconsistent, whereas in relation to other risks (e.g. to biosecurity and health) is much less developed.

There are also gaps in our knowledge, including the potential costs to the economy over the medium and long term if no action is taken now to adapt, and potential biosecurity threats to our sectors and natural systems. Information that we do have is not always readily available in a format that supports decision-making.

In order to adequately and strategically plan for the effects of climate change, we need to determine how exposed people, infrastructure, the natural environment and the economy are to climate change risks. This information needs to be accessible and standardised to best support decision-makers (including iwi/Māori communities, transport and infrastructure sectors, and central and local government).

The proposed National Climate Change Risk Assessment will inform where New Zealand should invest its effort to reduce climate risk and minimise the cost of disaster response and recovery. It would be the first step towards an aligned approach across all sectors to help stimulate action in a systematic way. This assessment would provide the necessary foundation for investment, decision-making and would guide future work. It will provide the necessary evidence base to help:

- plan and prioritise actions to reduce exposure and vulnerability of existing and future communities in response to climate change risks
- more effectively communicate current and future risks and opportunities
- guide investment decision-making.

The National Climate Change Risk Assessment would be in a publicly available report and updated at five yearly intervals. We propose that the Climate Change Commission 'own' the risk assessments. However, until the Commission is established, we propose the Government contract an external party of experts to undertake the first iteration. Subsequent assessments would be the responsibility of the Commission.

What is the National Adaptation Plan and what could it cover?

Climate change adaptation is not currently integrated into many central government agency objectives. This means sectors operate within regulatory frameworks and policies which are not well aligned. This makes it difficult for central and local government and sectors to proactively organise themselves and take action.

As well as not being well aligned, there is unclear leadership and vision on what we are trying to achieve in terms of long term climate change risk reduction. There are unclear lines of responsibility and accountability, and understanding of legal liability. The proposed National Adaptation Plan will address this.

This has resulted in little evidence of policies and frameworks for adaptation translating into proactive action. Actions that have been taken to adapt have been generally reactive. The current system is not delivering efficient assistance or fostering certainty for councils and communities. There are considerable gaps in our planning preparedness, and these will be barriers to ensuring New Zealand's resilience if they are not addressed.

We need a planned response to climate change risks. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, we propose a National Adaptation Plan be developed. The National Adaptation Plan will:

- identify priority areas for addressing risk, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks
- help clarify roles and responsibilities on climate change adaptation, determining who needs to act on what and when
- be designed to anticipate risks, and be proactive and comprehensive
- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

The National Adaptation Plan will outline actions considered to be most effective at reducing the risks as identified in the climate change risk assessment. We propose it is 'owned' by Government and developed in consultation with a range of key groups and stakeholders. We propose it is updated at 5 yearly intervals, to synchronise with the 5-yearly risk assessment process.

The National Adaptation Plan will be cognisant of the proposed Strategies to achieve the carbon budgets. Synchronicity between climate change mitigation and adaptation policies is important to ensure action in one area does not have unintended, detrimental consequences in the other, making policy implementation difficult.

Ongoing evaluation of how the National Adaptation Plan is being implemented will be necessary to ensure it is enduring and leads to effective adaptation action. We propose the Adaptation Sub-committee within the Climate Change Commission (or alternate independent body) review the implementation of the National Adaptation Plan at the mid-point of each 5 year cycle. The outcomes of each review will be used to update the next iteration of Plan, reprioritising actions and resources as required.

What is the adaptation reporting power?

Currently, we don't know what adaptation action is being taken across key organisations in New Zealand.

We propose to introduce a mechanism (called the adaptation reporting power) to ensure organisations of a public nature with climate-sensitive responsibilities (such as electricity distribution network providers, or road and rail providers) are taking appropriate action to adapt to the impacts of climate change as part of their risk management processes.

The Act would give the Chief Executive of the Ministry for the Environment (or an alternative authority) the power to direct a limited number of organisations to produce reports detailing:

- the current and future predicted impacts of climate change on their organisation
- proposals and policies for adapting to climate change
- an assessment of progress towards implementing the policies and proposals.

Having the adaptation reporting power in primary legislation gives the government a lever to ensure climate change impacts are being considered by key organisations on a targeted basis.

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Only a small subset of eligible organisations would be invited to report in each round of reporting. The discretionary power of selection would rest with the Chief Executive of the Ministry for the Environment (or alternative authority), based on a clear methodology. The methodology would also specify how often the reporting power would be exercised. We propose this reporting be carried out on at regular intervals so the results can be fed into the proposed National Climate Change Risk Assessment and proposed National Adaptation Plan. Some organisations may be directed to report only once; some may need to report on a regular basis.

The Ministry for the Environment (or alternate authority) would receive the reports. They could be analysed by the Ministry or another party such as the Adaptation Sub-Committee within the Climate Change Commission. We expect the administrative burden to be low as the Ministry for the Environment (or alternate authority) would determine the number of organisations that will be directed to report, thereby managing volumes.

The reports will reveal how 'ready' organisations are with respect to managing climate risk. They will help government design supportive policies for adaptation and ensure that the existing regulatory environment encourages adaptation appropriately.

The adaptation reporting power could be exercised as a mandatory or a voluntary obligation. Experience in the UK, with such a reporting power found that mandatory reporting delivered a higher standard of reports giving government a greater understanding of adaption action being taken across sectors.

The benefits of the adaptation reporting power (for organisations that report under it) are that it:

- enables organisations to identify and examine their risk (risks to their assets, buildings, staff, services and operations, their supply lines, stakeholders and regulatory functions)
- helps promote organisational reputation (through providing evidence of how organisations are preparing for climate change and extreme weather impacts)
- helps organisations make more cost effective and timely decisions about how and when to adapt (contributing to the organisation's sustainability and potential for growth).

HOW WOULD ALL THE ELEMENTS OF THE ADAPATION TOOLKIT FIT TOGETHER?



Key:
CCRA = Climate Change Risk Assessment
NAP = National Adaptation Plan
ARP = Adaptation Reporting Power

A reset of our institutional frameworks

SUMMARY

- The Zero Carbon Act is an opportunity to make sure our institutional frameworks and laws are set up to help us meet our long term climate change goals.
- We propose to set up a requirement for Government to produce and maintain a long term low emissions economy strategy. This would be supported by five-yearly plans to meet emissions budgets and address adaptation risks.
- We also propose to establish a new independent Climate Change Commission (the Commission) to provide independent expert advice, and hold Governments to account towards progress.
- There are a range of roles that the Commission could take, from advisory to decision making. We propose a core set of advisory functions, and a requirement that the Government provide public responses to the Commission's advice.
- Under this model, the Commission would:
 - provide advice to Government on the level of emissions budgets
 - monitor New Zealand's progress towards emissions budgets
 - monitor New Zealand's progress towards addressing adaptation risks
 - provide advice to Government on issues related to climate change as requested.
- There are also a range of roles that the Commission could play in respect of the NZ Emissions Trading Scheme (NZ ETS), from advisory to decision making.

We are seeking your views on:

- the proposed set of core functions for the Commission
- the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- how commissioners should be appointed and what expertise they need.

A full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx

Our current institutional frameworks are ill-equipped to address the challenges of climate change

Reaching our long term climate change goals will require broad changes across our economy and society. It is important we make this transition in a smooth and efficient way, avoiding abrupt changes that could have negative impacts on New Zealand.

The Zero Carbon Act proposes to establish a new 2050 emissions reduction target, but a target by itself is not enough. New Zealanders need sight of how we are going to meet the target, and confidence that the pathway is going to remain broadly consistent even as new Governments are voted in.

We also need coherence across Government and New Zealand's laws to ensure that everything is pulling in the same direction. The development of climate change policy is distributed across different Government agencies, and there is currently no formal requirement to show how policies being developed across the economy will make progress towards meeting our emissions reduction commitments.

The Government is in the process of establishing a public sector Chief Executive's Board on climate change matters. We will also be introducing climate policy impact assessments so that we have a good understanding of the impacts of Government policies, which will be developed this year. Coordination across agencies is currently being provided through a climate change "transition hub" based at the Ministry for the Environment.

Commented [LN5]: Is this that relevant for a DD reader?

Alongside what is already in train, more stability can be built into our climate change policy in two key ways:

- requiring Government to take action in a planned, proactive and transparent way
- introducing a new independent body to keep us on track towards meeting our climate change goals.

In designing what's right for New Zealand, we will need to ensure it works for our particular circumstances. For example, we have an unusual emission profile for a developed nation with a high proportion of agricultural emissions. We start with fewer easy wins than others countries such as the UK, who were able to focus on decarbonising their energy sector in their early carbon budgets. This suggests the need for a tighter 'commitment device' than we see in other jurisdictions to keep us on track from the start. But it's equally important that there is widespread political and community support for change. s 9(2)(g)(i)

The Zero Carbon Bill proposes to put in place a new institutional framework and commitment device to help us achieve our climate change goals

The Zero Carbon Bill proposes to:

- require Government to produce a long-term low-emissions economy strategy, clear plans on how it intends to achieve emissions budgets and adapt to the impacts of a changing climate
- establish a new Climate Change Commission to provide independent expert advice, and ensure that we review and monitor progress based on robust evidence.

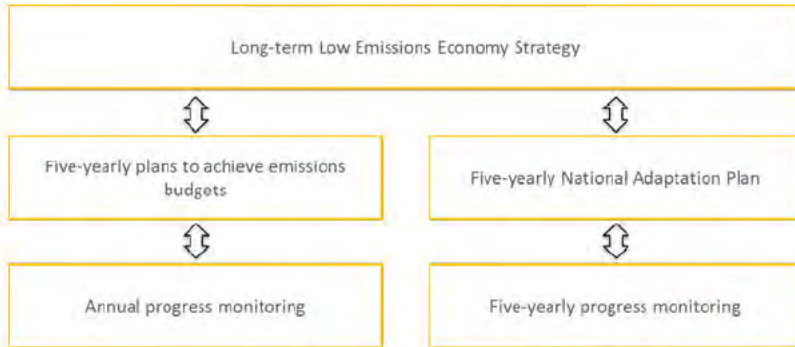
(1) *A strategy and action plan*

The transition to a low emissions, resilient economy will require deep and broad changes across our economy and society. It is clear we need to act now to reduce emissions and increase our resilience to the changing climate, but it is important that decisions we make now are set in the context of the wider transformation we are trying to achieve. Plans and strategies are useful tools to help us develop a coherent overall response to climate change that reflects the magnitude of the issue.

The Zero Carbon Act could introduce a statutory requirement that the Government maintain a long-term low emissions economy strategy. This could cover the period out to 2050, and set the longer-term framework within which the responses to specific issues (including emissions budgets and adaptation – discussed in more detail below) can be set out.

The diagram below sets out how the long term strategy, plans and monitoring could fit together.

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We also need to make sure that Government is working together, and policy decisions across portfolios consider the impacts on the transition to a net zero emissions, climate resilient economy.

(2) *An independent Climate Change Commission*

A Commission is a body set up by Government which usually operates at arms-length from Government in order to provide independent advice. Examples of existing Commissions in New Zealand include the Human Rights Commission and the Productivity Commission.

The former and current Parliamentary Commissioners for the Environment have proposed an independent Climate Change Commission in New Zealand (similar to the UK Committee on Climate Change) to address the long-term nature of the climate change challenge.¹⁷ A range of stakeholders, including a number of the business community, have indicated their support for such a model.

¹⁷ The Parliamentary Commissioner for the Environment, March 2018, *A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond*

CASE STUDY: THE UK COMMITTEE ON CLIMATE CHANGE

The United Kingdom, Australia, Denmark, Ireland, Finland, Sweden and the Philippines all have established some form of independent body to support climate change outcomes.

The UK's Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the Parliamentary Commissioner for the Environment and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5-8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee has no executive (decision-making) functions. In deciding the size of carbon budgets, the responsible Secretary of State (i.e. Minister) must take into account advice from the UK Committee, but remains the ultimate decision-maker. However, if the Secretary of State proposes a budget that does not conform with the advice of the Committee, he or she must provide reasons.

s 9(2)(g)(i)

. The key success factors for the Commission include:

- political consensus on its role and functions to ensure its durability
- independence in how it is able to operate at arms-length from Government, with stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process
- a capable and proportionate secretariat
- access to good quality data and arrangements in place to support the sharing of data (including with government departments).

A number of these features could be set out in the Zero Carbon Bill:

- the role of the Commissions (i.e. powers and level of independence)
- the functions of the Commission
- the expertise of the Commissioners
- the process to appoint Commissioners.

These components are discussed in more detail below.

What role should the Commission play? What level of independence and powers should it have?

There is a range of roles the Commission could take, from advising Government on recommended actions, through to making binding decisions or setting policy under its own authority, at arms-length from Government.

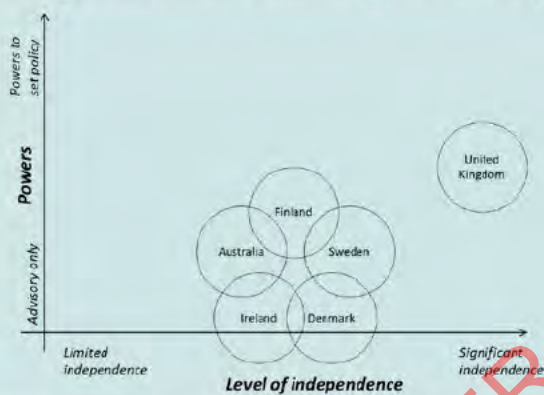
We are seeking your views on the most appropriate role for the Commission to take.

CASE STUDY: WHAT MODELS HAVE OTHER COUNTRIES ADOPTED?

There are trade-offs between how strongly the Commission is able to hold New Zealand on a path consistent with our long term goals, and the extent to which the authority to make decisions on policy is delegated to a group of appointed Commissioners.

Delegating too much authority to the Commission to make wide-ranging decisions generally made by democratically accountable bodies is likely to make it more susceptible to changes by future Parliaments, which will damage the stability we are trying to achieve. On the other hand, not giving sufficient weight and attention to the recommendations of the Commission could mean it is not effective in keeping us on track to our long term climate goals.

The diagram below illustrates where similar organisations in other jurisdictions sit on this scale.



One option is to establish an advisory model like many other countries have. This would be similar to the role of the New Zealand Parliamentary Commissioner for the Environment (PCE). At this end of the scale, expert advice is provided, but the Government is not obliged in a strong way to respond to recommendations. However, given the tough choices we may need to face at the outset, these models may not offer significant incentives to progress long-term climate change goals rather than shorter-term political imperatives.

At the other end of the spectrum, the Commission could be extended a broad range of decision-making powers. This would be similar to instances where policy is handed to an independent regulator, such as decisions on competition matters made by the Commerce Commission. However, independent commentators (including the PCE and the Productivity Commission) have recommended against the Commission being given this kind of decision-making role.

The Government proposes to establish a Climate Change Commission based most closely on the UK model of an advisory institution, but with additional accountability mechanisms. This proposal is in line with the recommendations of the PCE and the Productivity Commission. Under this model, the Commission would have many significant advisory functions but no executive (i.e. decision-making) functions. There could be an exception to this in respect of the NZ ETS, which is explored in more detail in a following section.

Government would be required to seek and consider the advice of the Commission in making decisions on specific issues. Government would also be required to provide a public response to the reports of the Commission, and provide a clear rationale if it deviates from the recommendations of the Commission.

In practice this provides a significant evidential hurdle for the Government in rejecting the recommendations of the Commission. The strength of the accountability device would be bolstered even further by two additional requirements, which go beyond the UK model:

- specifying a timeframe by which the Government must publish a plan to achieve emissions budget following the release of each budget
- requiring the Government to seek advice from the Commission when making changes to the NZ ETS.

There could also be other ways of further increasing accountability, and we would like to hear your views on what they could be.

What functions should the Commission have and how should Government respond?

The Commission could play a role in the following key areas:

- the 2050 target (more information on this proposal can found in chapter x)
- emissions budgets (more information on this proposal can found in chapter x)
- adaptation (more information on this proposal can found in chapter x)
- provision of advice on issues relating to climate change.

The organisational form of the Commission will depend on its functions and powers. However, the requirement for independence, combined with the need to interact with Government to share information and resources with public sector agencies, means the most appropriate form of the Commission is likely to be an Autonomous Crown Entity, an Independent Crown Entity, or a unique entity exhibiting functions of both.

The proposed role of the Commission, and the corresponding role of Government on each of these areas is set out below. We welcome your views on the most appropriate functions and institutional form of the Commission.

The 2050 target

The Government proposes to set a new 2050 emissions reduction target in law through the Zero Carbon Bill.

Chapter x sets out the conditions which could justify a change to the 2050 target. s 9(2)(f)(iv)

Emissions budgets

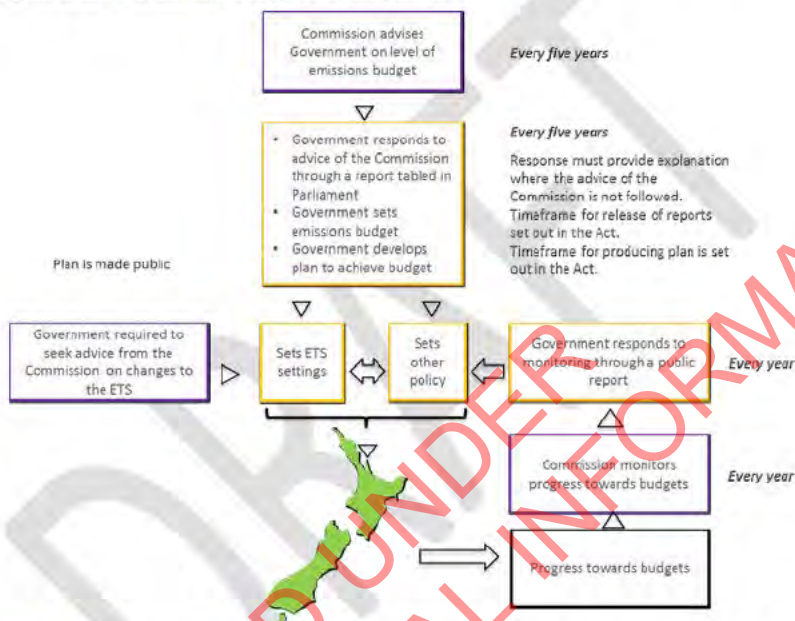
The Commission could also provide independent advice on most appropriate level for setting each emissions budget, and independent monitoring of New Zealand's progress towards meeting these. The proposed process and roles in the setting of emissions budgets is:

1. Climate Commission provides advice to Government on the most appropriate level of an emissions budget. This advice could include:
 - the extent to which international emissions reductions should be used to meet the budget;
 - the extent to which sectors covered by the NZ ETS should reduce emissions to meet the budget; and
 - areas across the economy where there is an opportunity to make emissions reductions.

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2. Government sets the emissions budget, and provides a public response to the advice of the Commission. Where the adopted budget differs from the advice of the Commission, the response should outline why this is the case.
3. Government publishes a plan to meet the emissions budget.
4. Government sets policies to achieve the emissions budget.
5. Where changes to the NZ ETS are proposed, Government seeks the advice of the Commission on what should be changed.
6. Businesses and consumers respond to policies.
7. Commission then monitors New Zealand's performance against the emissions budget and publishes a report each year setting out its assessment of our progress.
8. Government publishes a response to the monitoring report of the Commission.

The diagram below sets out how this process could work.



Chapter x sets out the conditions which could explain a change to an emissions budget. In the event that these conditions are met, it is important that we establish a robust and inclusive process to inform any changes. The proposed process is:

1. Government seeks the advice of the Commission on the most appropriate level for the emissions budget.
2. Government publishes a proposal for the new level of the emissions budget. Where the proposed level differs from the recommendation of the Commission, this report should set out the reasons for the differences.
3. Government makes the change to the emissions budget.

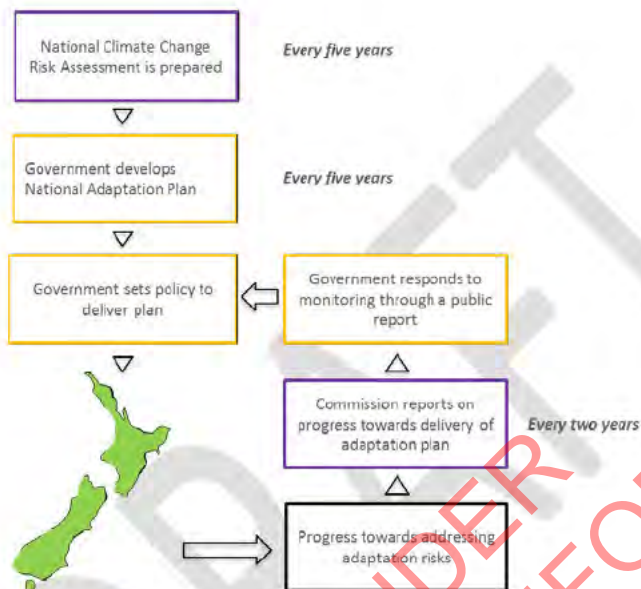
Adaptation

The Commission could also monitor New Zealand's progress towards addressing the risks posed by climate change. The proposed process and roles for the delivery of adaptation strategies and plans is:

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1. The National Climate Change Risk Assessment is undertaken (first assessment is proposed to be undertaken by the Government).
2. Government develops and publishes a National Adaptation Plan.
3. Commission publishes a report setting out progress towards delivering the National Adaptation Plan.
4. Government publishes a response to the monitoring report of the Commission.

The diagram below sets out how this process could work.



Provision of advice

The Commission could provide independent expert advice on issues related to climate change (e.g. the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity), as requested by the Government. The Commission could also provide advice to Government on NZ ETS matters, such as how many units should be made available in the scheme or any price controls.

What matters should the Commission take into account when providing advice?

It will be critical for decisions on climate change policy to be in-step with the broader economic strategy if we are going to achieve our intended domestic objectives for climate change action and deliver a just and inclusive transition.

In establishing the Zero Carbon Act, we have an opportunity to set out the issues that the Commission is required to consider in undertaking its work. This will help ensure its work is transparent and consistent, and supports the just and effective transition.

The UK Climate Change Act 2008 sets out the issues that the Secretary of State and UK Committee on Climate Change are required to take into account in connection with carbon budgets, and offers a useful precedent.

CASE STUDY: WHAT MATTERS NEED TO BE TAKEN INTO ACCOUNT BY THE UK COMMITTEE ON CLIMATE CHANGE?

The United Kingdom Climate Change Act sets out the issues that both the UK Government and the UK Committee on Climate Change should take into account when making decisions on carbon budgets:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy
- differences in circumstances between England, Wales, Scotland and Northern Ireland
- circumstances at European and international level
- the estimated amount of reportable emissions from international aviation and international shipping for the budgetary period or periods in question.

We are seeking your views on the most important matters that a Climate Change Commission in New Zealand should consider in undertaking its work.

These issues will inform the Commission's judgements on the extent and pace of the required changes across the economy, including any trade-offs between early and delayed action.

We consider that, in addition to matters set out in the UK precedent, in the New Zealand context it will be important for the Commission to also consider our commitments under the Paris Agreement, our obligations under the Treaty of Waitangi, as well as the new 2050 emissions reduction target. There could also be value in the Commission considering broader environmental circumstances, including the impact of any decisions on areas such as water quality.

What role could the Commission have with regard to the New Zealand Emissions Trading Scheme?

Commented [LN6]: TBA tomorrow

What expertise should the Commission have?

The credibility of the Commission depends in large part on its membership: that Commissioners would need to have a high level of standing in society, and are seen as experts in their fields as opposed to stakeholders representing a particular interest group. Commissioners will also need strong interpersonal and communication skills, and be open to having their own views challenged.

The expertise on the Commission will need to reflect New Zealand's circumstances, including our emissions profile, economic and social circumstances, responsibilities under the Treaty of Waitangi, the roles of local and central Government, and our developing response to adapting to climate change.

CASE STUDY: EXPERTISE OF THE UK CLIMATE CHANGE COMMITTEE

The United Kingdom Climate Change Act (2008) sets out the desirable knowledge and experience on the United Kingdom Committee on Climate Change:

In appointing a member, the national authorities must have regard to the desirability of securing that the Committee (taken as a whole) has experience in or knowledge of the following—

- *business competitiveness*
- *climate change policy at national and international level, and in particular the social impacts of such policy*
- *climate science, and other branches of environmental science*
- *differences in circumstances between England, Wales, Scotland and Northern Ireland and the capacity of national authorities to take action in relation to climate change*
- *economic analysis and forecasting*
- *emissions trading*
- *energy production and supply*
- *financial investment*
- *technology development and diffusion.*

Our proposed list of essential expertise to be represented on the Commission broadly aligns with the recommendation of the PCE, but includes specific consideration of adaptation issues such as planning, insurance and local government.¹⁸ A full list is set out below:

- Climate change policy (including carbon pricing)
- Resource economics and impacts (including social impacts, labour markets and distribution)
- Te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- International competitiveness
- Climate and environmental science
- Local government
- Planning
- Insurance and risk assessment
- Sector specific knowledge on transport, energy production and supply, forestry, and agriculture

Desirable, but non-essential, expertise could include:

- Technology development and diffusion
- Business competitiveness
- Financial investment
- Engineering
- Behavioural economics

How should Commissioners be appointed?

A transparent and robust appointment process will be an important contributor to the credibility of the Commission. There are a range of options for how the appointment process could be specified in legislation, from the responsible Minister making the appointment, through to the Governor General.

Given the importance of the independence of the Commissioners, the following appointment process is proposed:

¹⁸ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

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- An independent committee provides nominations for the appointments to the Minister for Climate Change. The nominating committee is made up of at least four people with relevant skills and experience, including the Chair of the Commission unless that position is vacant.
- The Minister consults on the nominations with representatives of other political parties in Parliament, with the aim of gaining cross-party support.
- Commissioners are appointed by the Governor General on the recommendation of the Minister for Climate Change.

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PART FOUR: Next steps

Your feedback will help shape the Zero Carbon Bill

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill.

By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

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Appendices

APPENDICES WHAT IS THE NEW ZEALAND EMISSIONS TRADING SCHEME

The New Zealand Emissions Trading Scheme (NZ ETS) is the Government's main policy response to climate change. The NZ ETS aims to reduce net greenhouse gas emissions and help New Zealand meet its emission reduction targets.

The NZ ETS places a price on emissions to provide an incentive to reduce emissions through actions like investment in technologies or practices with lower emissions, or planting trees to remove emissions. The NZ ETS creates this price by putting an obligation on emitters from all sectors (except agriculture) to surrender emissions units to the Government for their emissions – one unit for every tonne of emissions.¹⁹ It also allows eligible foresters to earn "New Zealand Units" (NZUs) as their trees grow and absorb carbon dioxide.

This means emitters must either reduce their emissions or purchase units from others – e.g. from foresters who have earned units. The price of emissions units depends on the supply and demand of units, underpinned by the cost of actions to reduce emissions.

The Government's recent review of the NZ ETS found it has not been as effective as it could be in reducing emissions and incentivising forest planting. The Government is now in the process of implementing key measures to strengthen the NZ ETS. These changes will allow unit supply to be aligned to our emission reduction targets, and mean the scheme will operate in a predictable and well-signalled way. This will require changes to the Climate Change Response Act 2002, which will be consulted on separately later this year and introduced to Parliament next year.

Decisions in the Zero Carbon Bill will have impacts on the NZ ETS. In future, the NZ ETS unit supply settings will need to be managed to align with our international emissions reduction targets, domestic emissions budgets, and strategy for New Zealand's transition to low emissions. In addition, the Climate Change Commission will look at the issue of agriculture's inclusion in the NZ ETS.

Important changes to the NZ ETS

The Government has made in-principle decisions on a package of four proposals to improve the operation of the NZ ETS in the 2020s. The in-principle decisions are expected to be implemented in 2019 following further policy development and consultation.

The in-principle decisions include:

- introducing auctioning of units, to align the NZ ETS to our climate change targets
- limiting participants' use of international units when the NZ ETS reopens to international carbon markets
- developing a different price ceiling to eventually replace the current \$25 fixed price option
- coordinating decisions on the supply settings in the NZ ETS over a rolling five-year period.

The in-principle decisions will contribute to stability and predictability on the scheme by:

- give the Government the tools to align the supply of units in the NZ ETS with our target
- set up a more predictable and transparent process for decision-making on NZ ETS supply settings such as unit volumes and the price level of any price ceiling.

Commented [LN7]: This needs to be inserted in the chapter where the NZ ETS is first mentioned (likely targets or budgets)

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References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

Commented [LN8]: Draft questions on specific policy proposals below

Emissions budgets

Do we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target?

Is the look-ahead period (15 years maximum, and 10 years minimum) sufficient to make informed investment decisions?

Do you agree with the proposal of five-year emission budgets, or do you have suggestions for an alternative duration (if so what)?

Is the approach to monitoring budgets annually, with a comprehensive review every five years (in step with budget setting) appropriate?

Do you support the proposal for emissions budgets to be revised (to provide a balance between predictability and flexibility)?

Do you support the proposal for 'banking and borrowing' between emissions budgets?

Do you have any other comments in relation to the need for, or design of, emissions budgets?

Commission

The Government has proposed that the Commission has a number of core advisory and monitoring functions. Which ones do you support?

→ Tick all that apply:

- Advising the Government on the level of long-term emissions reduction targets, for example subsequent targets to the proposed 2050 target, and the emissions reduction commitments New Zealand makes under the Paris Agreement.
- Advising on carbon budgets and areas of policy focus needed to achieve carbon budgets.
- Advising on policy parameters in the NZ Emissions Trading Scheme, for example the supply of units into the scheme and any price limits.
- Advising Government on issues relating to climate change, for example the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity.
- Monitoring New Zealand's progress towards carbon budgets and publishing annual reports on this.
- Monitoring progress towards delivering adaptation strategies and plans.

The Government will be required to:

- seek and consider the advice of the Commission in making decisions (including changes to the NZ ETS)
- provide a public response to the reports of the Commission, and provide justification if it deviates from the recommendations of the Commission
- publish a plan to achieve each emissions budget within a certain timeframe following the release of each budget
- publish a national adaptation plan to address climate risks, informed by the national risk assessment.

Do you agree with these requirements?

→ Select:

- Yes
-Why? [optional comment box]
- No
-Why? [optional comment box]

Commented [LN9]: Format:

[Question]

→ Select:

•Yes

-Why? [optional comment box]

•No

-Why? [optional comment box]

•I m undecided / I suggest something else [optional comment box]

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- I'm undecided / I support something else [optional comment box]

The Commission could also have an additional role in deciding the supply of units in the NZ ETS. Do you think the Commission should have this additional decision-making role? Why or why not?

→ Select:

- [Comment box]

Do you think there are any functions that are missing?

- [Comment box]

What are the most important considerations that the Commission to take into account or matters it must have regard to when undertaking its work or making decisions under the legislation?

- [Comment box]

Our proposed appointment process is X. Do you agree with the proposed appointment process?

→ Select:

- Yes
 - Why? [optional comment box]
- No
 - Why? [optional comment box]
- I'm undecided

We propose that Commissioners will need to have expertise in Y. Do you agree with list of skills proposed for Commissioners? What do you think the most important skillsets required are?

- [Comment box]

Adaptation

The government has proposed that the Zero Carbon Bill include a number of functions to help us adapt to climate change: which do you support?

→ Tick all that apply

- A National Climate Change Risk Assessment
- A National Adaptation Plan
- The ability to scrutinise the plan
- A reporting power

We propose that the National Climate Change Risk Assessment include the following: which do you support?

→ Tick all that apply

We propose that Government prepares a National Adaptation Plan. Do you want to be part of this process?



To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04505
<u>Security Level</u>	In confidence	Number of Attachments #	Titles of attachments 1. Draft discussion document 2. Timeline for finalising discussion document
Date Submitted:	20 April 2018	Response needed by:	24 April 2018
MfE Priority:	Urgent	Action Sought:	Discuss on 24 April meeting with officials

Draft Zero Carbon Bill Consultation Document

Key Messages

- We seek your feedback on the draft discussion document for the Zero Carbon Bill, including the:
 - draft discussion document 'at a glance' (*Appendix 1*)
 - draft discussion document, minus the draft 2050 target chapter (*Appendix 2*)
 - draft 2050 target chapter (*Appendix 3*)
 - process to finalise the discussion document (*Appendix 4*).
- This is our first version of the discussion document. There will be further iterations before it is ready to be lodged with Cabinet. We attach the targets chapter separately to continue to work through the policy options with agencies, incorporate economic modelling, refine the economic narrative, and align the economic impacts with policy options.
- As the discussion document will inform the suite of consultation products we seek your early feedback on it.

General feedback

- We seek some general feedback on:
 - the narrative contained in the introduction section*, and whether it articulates the Government's key drivers for taking action and represents a balanced view of the opportunities and challenges ahead
 - the tone and level of detail contained in the chapters* (note we have chosen to tailor the content to a technical audience or those who are particularly interested in the proposals).

Minister's comments:

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Feedback on specific policy areas

5. There are also a number of areas we seek your specific feedback:

- *the Commission*, including the option giving decision making powers on the NZ ETS to the Commission
- *the 2050 Targets*, including what options to present given modelled economic impacts to date, noting we are still awaiting further information and modelling runs¹
- *the adaptation reporting power*, including whether you wish to include this as part of the suite of legislated adaptation tools, and how such a power, aligns with the Government’s broader policy on climate risk disclosure.

6. We are still working through these matters with agencies. Our preferred position on each is set out below.

The 2050 target options

7. We recommend a range of options for the 2050 target presented without a Government preference. This is to continue to work through our advice for the form and level of the target internally and with other agencies, and strengthen economic modelling on the pathways to meet the 2050 target. This approach aligns with seeking cross-party views on the options.

As currently drafted the range of options for the 2050 include:

- **a short-list of possible forms for the 2050 target**, including options for coverage of greenhouse gases and/or sectors of the New Zealand economy. The PCE, Productivity Commission and Generation Zero all propose a ‘split’ or ‘two baskets’ target, which distinguishes between the treatment of long-lived and short-lived greenhouse gases and, or the treatment of sectors
- **a continuum of levels for the 2050 target**, which represent a range of ambition levels. This continuum includes percentages of emissions reductions relative to our current target and a description of expected impacts from different target levels.

8. We also recommend including the PCE’s preferred approach: where the Government sets a “placeholder” target which includes a high level goal that reflects the Paris Agreement expectation to reach net zero emissions in the second half of the century. The Climate Change Commission (the Commission) could then advise the Government on what it considers is the most appropriate target for New Zealand circumstances.

Minister's comments:

¹ Economic modelling covers economic impacts of the potential form of the target (all gases or a short lived vs long lived approach), and the economic analysis informing on potentially necessary emissions price rises, sectoral or technological changes necessary to achieve target options and the potential GDP impact

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The Commission's role in the ETS

9. s 9(2)(g)(i)



10. We recommend that the Commission take an advisory role on the NZ ETS as giving it decision making authority presents risks in three key areas:

- policy consistency risk. Taking decisions on the NZ ETS in isolation from Government's decisions in other areas could introduce a risk of inconsistent policy. This could increase the overall cost of reducing emissions in New Zealand.
- fiscal risk, where Ministers are responsible for revenue and expenditure as a result of the NZ ETS, but do not control its settings.
- Commission durability risk, where delegating too much authority to the Commission is likely to make it more susceptible to changes by future Parliaments, which will damage the stability we are trying to achieve.

Minister's comments:

The adaptation reporting power

11. We propose to introduce a mechanism (called the adaptation reporting power), which could be voluntary or mandatory, to encourage organisations of a public nature with climate-sensitive responsibilities (such as electricity distribution network providers, or road and rail providers) to take appropriate action to adapt to the impacts of climate change as part of their risk management processes.
12. Based on the UK model, this would give the Chief Executive of the Ministry for the Environment (or an alternative authority) the power to direct a limited number of eligible organisations to produce reports detailing:
- the current and future predicted impacts of climate change on their organisation
 - proposals and policies for adapting to climate change
 - an assessment of progress towards implementing the policies and proposals.
13. Due to the limited number of organisations that would be directed to report, we do not expect this proposal to create a large administrative burden for the Ministry (or alternate authority). These are design features that will be developed further down the track.
14. We also seek your views on how such a reporting power would align with other existing reporting obligations and the Government's broader policy on climate risk disclosure.

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Minister's comments:

The process for finalising the discussion document with your colleagues

15. We propose that you use the upcoming Minister Governance meetings to tease out varying portfolio interests and priorities ahead of time.
16. To support you to build consensus with your colleagues on what options to consult the public on, we will provide materials for the:
 - Climate Change Minister's meeting on 30 April on the 2050 target and Commission
 - ENV Committee on 8 May on the overarching framework and 2020 outcomes.
17. We plan to incorporate feedback from these meetings to update the discussion document. We will provide you a final updated version to circulate with your Minister colleagues on 4 May 2018. Note that we will engage our internal regulatory impact assessment panel (RIAP) to quality assure the document.
18. The key dates to finalise the discussion document are set out in Appendix 4.

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Recommendations

19. We recommend that you:

- a. **Meet** with officials on 24 April for further discussion

Yes/No

Signature

Janine Smith
Manager
Climate Change Policy

Hon James Shaw
Minister for Climate Change

Date

Ministry for the Environment contacts

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Appendix 1: Draft discussion document 'at a glance'

Appendix 2: Draft discussion Document

Appendix 3: Draft 2050 target chapter

Appendix 4: Process to finalise the discussion document

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Appendix 1: Discussion document at a glance

This summary is intended to help guide your reading of the draft discussion document, and help inform our discussions with you.

INTRODUCTION: JOINING THE GLOBAL TRANSITION

- The world has agreed to transition to a net zero emissions, climate resilient future. This will require a fundamental economic shift.
- As we have seen from transitions in the past, such as the industrial and digital revolutions, this creates challenges – but also opportunities.
- We need to make choices now about we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.
- This is not just about the next three years, or the next six, but a series of decisions that affect our collective long-term futures.
- What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.
- The Zero Carbon Bill can deliver the long term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future.

A NEW 2050 TARGET

- If we are to reach net zero emissions in the second half of this century, a deep and broad transition is needed across the New Zealand economy.
- The transition will bring some challenges.
 - s 9(2)(g)(i)
 - Emissions intensive sectors will face challenges and so may require sector-specific policies to balance the incentives for change with protecting regional economies and New Zealand's competitiveness.
- It will also bring opportunities.
 - New Zealand will benefit compared to other countries in our renewable electricity, forestry and agricultural science sectors. International evidence suggests a strong link between having strong emissions policies and increased rates of innovation. But we will need to support our businesses, farmers, entrepreneurs, science and innovation institutions to realise these potential benefits.
 - We can also expect wider upsides to society relating to health, congestion and environmental benefits.

- Including a new target in the Zero Carbon Bill provides a clear commitment to transition to lower emissions.
- Government has committed to ensuring this is a just transition, and will work with businesses, unions, iwi, regional and local councils and government support agencies to make sure those affected are supported through this change.
- This target, if supported by plans and policies to achieve it, will help make sure New Zealand makes transition in a smooth and efficient way.
- We have options for the form of the target, including which greenhouse gases it covers, and whether it distinguishes between different sectors of the economy.
- We also have a decision about the level of the target.

We seek the public's views on the form and level of the target.

EMISSIONS BUDGETS

- Emissions budgets can act as stepping stones to guide progress towards our 2050 target.
- The Zero Carbon Bill could set up the emissions budgeting system.
 - Emissions budgets could be set 10-15 years in advance, with each budget specifying an allowable volume of emissions for a 5 year period. The third budget could be revised within a threshold to allow for changes in the economy and technology, and some 'banking and borrowing' could be allowed between emission budgets periods (within limits).
 - The Commission could have a role in advising Government on whether a future emissions budget should be revised. They could also provide expert advice and recommendations on the upper limit of international units that could be used in a budget period, based on available evidence.

- We seek the public's views on:
 - whether we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target
 - key elements of the proposal (including the look-ahead period of 10-15 years, the five year duration of each budget, annual monitoring and comprehensive review every five years).

THE ADAPTATION TOOLKIT

- The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.
- Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change.

- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.
- We need some core adaptation provisions in law to ensure we manage these risks in a systematic way. The proposed provisions include:
 - a National Climate Change Risk Assessment
 - a National Adaptation Plan
 - regular review of progress towards implementing the National Adaptation Plan, and
 - a reporting power under which specified organisations regularly report on what they are doing to prepare for climate change impacts.

- We seek the public's views on:
 - the parameters, scope and scale of each of the adaptation provisions the respective roles of central government and the Climate Change Commission
 - the respective roles of central government and the Climate Change Commission.

A NEW CLIMATE CHANGE COMMISSION AND HOW IT WORKS WITH GOVERNMENT

- The Zero Carbon Bill is an opportunity to make sure our institutional frameworks and laws are set up to help us meet our long term climate change goals.
- We propose to create a requirement for Government to produce and maintain a 2050 Climate Change Transition Strategy. This would be supported by five-yearly plans to meet emissions budgets and address adaptation risks.
- We also propose to establish a new independent Climate Change Commission (the Commission) to provide independent expert advice, and hold Governments to account towards progress.
- There are a range of roles that the Commission could take, from advisory to decision making. We propose a core set of advisory functions, and a requirement that the Government provide public responses to the Commission's advice.
- Under this model, the Commission would:
 - provide advice to Government on the level of emissions budgets
 - monitor New Zealand's progress towards emissions budgets
 - monitor New Zealand's progress towards addressing adaptation risks
 - provide advice to Government on issues related to climate change as requested.

- There are also a range of roles that the Commission could play in respect of the NZ Emissions Trading Scheme (NZ ETS), from advisory to decision making.

- We seek the public's views on:
 - the proposed set of core functions for the Commission
 - the Commission's role in respect of the NZ ETS
 - what matters the Commission should consider or take into account when undertaking its work
 - how Commissioners should be appointed and what expertise they need.

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Ministry for the
Environment
Manatū Mo Te Taiao

Consultation on the Zero Carbon Bill

[tagline – tbd]

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Acknowledgements

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This document may be cited as: Ministry for the Environment. *year*. *Title of publication*. Wellington: Ministry for the Environment.

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Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: *ISBN print version* (print)
ISBN online version (online)

Publication number: ME *xxxx*

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This document is available on the Ministry for the Environment website: www.mfe.govt.nz.



*Making Aotearoa New Zealand
the most liveable place in the world*

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

This document ...

Finding your way around the document

- Part 1 – Introduction
 - Outlines ...
- Part 2 – Proposals for the Zero Carbon Bill
 - Sets out the proposals for the Bill, including...
- Part 3 – What happens next?
 - Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [insert link].
- You are not limited to answering only the questions that appear in the submission form. There is space in the submission form for additional comments. You can also attach additional pages to the form.
- Submissions must be lodged by [xx date].
- Submissions can be:
 - completed online at [insert link]
 - emailed to [insert address]
 - posted to [insert address]

For more information

- Visit the Online Engagement Portal at [insert link]
- Ask the Zero Carbon Bill team at [insert email address]
- Attend one of the events and hui being held around the country and online.

Minister's Foreword

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PART ONE: Introduction

▶ He mokopuna he tupuna. ◀

The need for a plan

JOINING THE GLOBAL TRANSITION

The world has agreed to transition to a net zero emissions, climate resilient future. This will require a fundamental economic shift.

As we have seen from transitions in the past, such as the industrial and digital revolutions, this creates challenges – but also opportunities.

As New Zealanders, we need to make choices now about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures.

What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future.

This is a critical conversation to be having now, and we invite you to be part of it.

The world has agreed to transition to a net zero emissions, climate resilient future.

Climate change is one of the greatest challenges of our time, and its impacts will be more pronounced as time goes on. Most of New Zealand's major urban centres and the majority of our population are located on the coast or floodplains of major rivers. Many sites of significance to Māori, mahinga kai rohe and wāhi tapu sites are in low-lying or coastal areas. We are already seeing more damage and disruption as a result of more frequent and more intense extreme weather events, and we can expect this to increase in scale and magnitude. Climate change will impact our regions¹ in different ways, but it will affect all New Zealanders, and how we live, work and travel.

¹ See more on the likely impacts by region at the Ministry for the Environment's website at <http://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region>.

QUICK FACTS: WHAT IS CLIMATE CHANGE?

Earth's atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small percentage of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze, but increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

This is what has happened over the past 150 years, with the marked and growing increase in human-generated greenhouse gases from activities such as burning fossil fuels for energy and farming for food production. The Earth is now heating up at an unprecedented rate. With the amount of carbon dioxide already in our atmosphere and its ability to trap heat for centuries, we will face at least 1 degree Celsius global temperature rise by xx. If we do not reduce emissions to keep it within 2 degrees, the world could face severe, pervasive and irreversible impacts.

In 2015, 196 countries, including New Zealand, met in Paris to agree on a global response to climate change. Countries decided under the Paris Agreement to keep global temperature rise below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius. To achieve this, the world must reach global net zero greenhouse gas emissions² by the second half of the century. Net zero emissions means reducing the volume of emissions caused by human activity until our total output is no greater than the emissions we remove, through activities like planting forests and reducing deforestation. The Paris Agreement also recognises the need for countries to adapt and reduce their vulnerability to the adverse impacts of climate change.

This will require a fundamental economic shift in New Zealand.

As countries take steps to reduce their own emissions, we can expect global demand to increase the need for clean technology and low-emissions food, fibre, and other materials. We need to remain competitive by thinking about key challenges and how we can be ahead of the game.

The opportunities of an economy where we can enhance our prosperity in a way that is decoupled from reliance on emissions-intensive industries are numerous. For example, climate policies are expected to provide benefits to the health sector through reduced rates of non-communicable diseases and improved air quality. We also know that climate action can provide significant innovation benefits, with research showing a strong correlation between innovation in low-emission technologies and the stringency of climate change policy.³ The increased innovation activity from climate action also can generate benefits for other parts of the economy, where new technologies and ideas are passed to other sectors.⁴

The Government's broader economic strategy complements the need to reduce our emissions. To improve our economy we must lift our productivity and diversify our exports to be knowledge-intensive and high-value. Data insights from the Productivity Commission reveal our recent GDP growth has been driven by adding more people to the economy, and people working more hours, and we are growing employment in low-productivity industries.¹ We're working harder not smarter. Aligning climate and economic growth policy will boost our growth – the OECD suggests this shift could improve GDP by 1%.

[Insert potential economic costs/impacts, specify potential trade-offs for different sectors – TBA]

² Define

³ Dechezlepretre, A., Martin, R. and Bassi, S., 2016. Climate change policy, innovation and growth. Grantham Research Institute on Climate Change and the Environment, Policy Brief.

⁴ Dechezlepretre, A., Martin, R. and Mohnen, M., 2013. Knowledge spillovers from clean and dirty technologies: A patent citation analysis. Grantham research Institute in Climate Change and the Environment Working Paper no. 135.

CASE STUDY: WHAT KINDS OF CHANGES COULD WE SEE?

The policies we develop, and the changes we could see across different sectors, will depend largely on the speed and form of technological change. Here are three scenarios:

1. If technological change is slow, then New Zealand will need ambitious policy action to reduce our emissions. Under this futures scenario, we would likely rely on options that are already available, such as incentivising land use change, and expanding forestry. Government would also need to provide greater incentives to support public and active transport, and the uptake of electric vehicles.
2. Another future is one which features rapid technological change that disrupts current economic structures. This could see new technologies and products creating new markets and reducing demand in existing ones. Under this futures scenario, as people's preferences change both at home and overseas, we might see an expansion of horticulture and reductions in dairy. Similarly, a rapid decrease in the cost of renewable energy could also lead to less demand for coal and gas generation.
3. A third future features rapid technological change such as the development of methane vaccines and nitrogen inhibitors. This could stabilise existing industry structures and reduce the need for large shifts in economic activity.

As New Zealanders, we have choices about how far and how fast we transition.

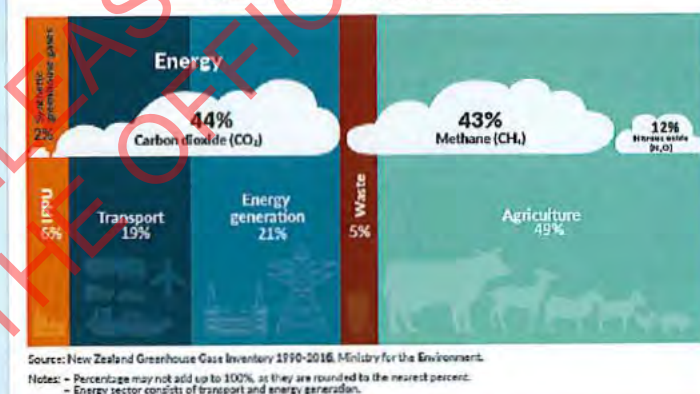
In shifting to a lower-emissions and resilient economy, businesses in emissions-intensive industries will face significant choices over the coming years. Choices will depend on individual and industry circumstances.

s 9(2)(g)(i)

WHERE ARE OUR EMISSIONS COMING FROM?

Our emissions profile is unusual, relative to much of the rest of the world. We have an economy that is largely based on primary industries, and our agriculture sector is on average four times bigger than our peers in the OECD.⁵ Moreover, while many developed countries' primary focus has been on reducing carbon dioxide emissions from electricity generation, most of New Zealand's electricity (about 80%) is generated from renewable sources. These circumstances mean we face different challenges and opportunities for reducing our emissions.

Figure 1: New Zealand's emissions profile in 2016



⁵ Reference

Early action could make a big difference to future impacts and may reduce long term costs. The sooner we act, the more time and options we will have for the transition with less disruption on communities. If we do not plan for change, our transition will be more abrupt.⁶ s 9(2)(g)(i)

s 9(2)(g)(i)

We do not know exactly how technology and other factors will change over time, but we do know we must adjust. We will still need to plant trees, make the most of our abundant renewable electricity, support the uptake of new technologies, and get the settings for urban design right. s 9(2)(g)(i)

s 9(2)(g)(i)

To thrive, our economy will need to diversify, support continued international competitiveness in areas where we're ahead of the curve, and mitigate against economic shocks.

Signalling where we want to be in 2050 will act as the necessary trigger to shift the economy and society. Providing lead-in time allows people to make informed investment choices about the future, and ensures we have the right training and investment for new jobs and we can support those affected. Taking a planned and adaptive approach now means we can actively manage progress rather than delaying action. s 9(2)(g)(i)

s 9(2)(g)(i)

An effective transition will require us to think and act long-term.

This is not just about the next three years, or the next six, but how we transition into the second half of the century. All parts of society, but especially businesses, need a stable direction of travel so they trust that putting their money into climate-friendly activities will be a good investment. The direction of travel must be stable across governments, and we can provide this by:

- **Having a clear goal for reaching net zero emissions.** This will enable New Zealanders to understand where we as a country are headed. It will also provide a clear view of the nature and pace of the change we are trying to achieve.
- **Establishing long-term political commitment and accountability through our laws and institutions.** This is essential to set up for success in the longer term, and plays an important role in keeping New Zealand on track towards our longer term goals. Done well, this can provide insulation from short-term political pressures, while retaining flexibility for successive governments to make policy choices within a robust, transparent and lasting framework.
- **Aligning policies across Government.** This will ensure that we reduce emissions and build our resilience in a coherent way.

Enduring institutional arrangements for climate change, and a legislative framework for action, will help ensure this transition endures beyond political cycles.

⁶ World Bank, 2015.

⁷ Reference

⁸ Productivity Commission, Issues Paper.

What the Zero Carbon Bill will do

The Zero Carbon Bill can set out how New Zealand plans to get to a net zero emissions, climate resilient future.

The Bill proposes to:

- **Signal New Zealand's long-term emission reductions target and how we will meet it:** by setting a new emissions reduction target for 2050 and the stepping stones ('emissions budgets') to get there.
- **Plan for a changing climate:** by putting in place critical elements of New Zealand's adaptation toolkit (including the requirement for New Zealand to have a National Adaptation Plan in which prioritised actions are informed by a regularly updated National Climate Change Risk Assessment).
- **Make sure our laws and institutions support the transition by:**
 - Establishing a Climate Change Commission to provide independent expert advice, and hold Governments to account to our long-term goals
 - Requiring Government to respond with a coherent strategy and clear action plans to keep us on track to meet our long-term goals
 - Ensuring that we review and monitor progress, based on robust evidence.

The Bill will be guided by the three fundamental pillars of Government's overarching vision for climate change action:

- **Taking leadership at home and internationally,** recognising the best way for New Zealand to influence the global response is for us to show leadership by taking ambitious climate change action.
- **Building a productive, sustainable and climate-resilient economy,** by decoupling emissions from growth and diversifying our economy.
- **Creating a just and inclusive society,** by managing the pace of the transition, and by supporting regions and communities affected by transitional policies and those affected by the damaging impacts of climate change.

More information on these components can be found in later chapters of this document.

Your feedback on these proposals will help inform recommendations to Cabinet and next steps. By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

We invite you to be part of this critical conversation.

PART TWO: Proposals

2050 Target

SUMMARY

If we are to reach net zero emissions in the second half of this century, a deep and broad transition is needed across the New Zealand economy.

The transition will bring some challenges.

- s 9(2)(g)(i) [**Placeholder: awaiting NZIER modelling results, expected early May].

- s 9(2)(g)(i)

It will also bring opportunities.

- New Zealand will benefit compared to other countries in our renewable electricity, forestry and agricultural science sectors. International evidence suggests a strong link between having strong emissions policies and increased rates of innovation. But we will need to support our businesses, farmers, entrepreneurs, science and innovation institutions to realise these potential benefits.
- We can also expect wider upsides to society relating to health, congestion and environmental benefits.

Including a new target in the Zero Carbon Bill provides a clear commitment to transition to lower emissions.

- Government has committed to ensuring this is a just transition, and will work with businesses, unions, iwi, regional and local councils and government support agencies to make sure those affected are supported through this change.
- This target, if supported by plans and policies to achieve it, will help make sure New Zealand makes transition in a smooth and efficient way.
- We have options for the form of the target, including which greenhouse gases it covers, and whether it distinguishes between different sectors of the economy.
- We also have a decision about the level of the target.

We are seeking the public's view on the form and level of the target.

Emissions budgets

SUMMARY

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

The Zero Carbon Bill could set up the emissions budgeting system.

- Emissions budgets could be set 10-15 years in advance, with each budget specifying an allowable volume of emissions for a 5 year period. The third budget could be revised within a threshold to allow for changes in the economy and technology, and some 'banking and borrowing' could be allowed between emission budgets periods (within limits).
- The Commission could have a role in advising Government on whether a future emissions budget should be revised. They could also provide expert advice and a recommendations on the upper limit of international units that could be used in a budget period, based on available evidence.

We are seeking your views on:

- whether we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target
- key elements of the proposal (including the look-ahead period of 10-15 years, the five year duration of each budget, annual monitoring and comprehensive review every five years).

The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

We need stepping stones to guide our progress towards our 2050 target. These stepping stones would give greater certainty for how we will meet our long-term target, and allow us to monitor progress in reducing emissions. This helps ensure the country is 'on-track' and making consistent progress towards our 2050 target. Stepping stones also avoid the need for abrupt changes in the transition path.

The stepping stones to meet our 2050 target could take many different forms. The main methods other countries use is either: setting an emissions trajectory with milestones along the way, or setting budgets in advance for the maximum emissions allowed over a certain time period.

CASE STUDY: HOW DO OTHER COUNTRIES MEET THEIR LONG TERM TARGETS?

Some countries use a 'trajectory approach'. The European Union uses a 'staged trajectory' approach, which takes an almost straight-line approach from 2030 (with 20% emission reductions required in the 2030-2040 and 2040-2050 periods respectively).

Some countries set 'emissions budgets'. These are essentially a fixed amount of emissions that can be emitted at a national level over a certain time period. Each emissions budget could be set some years in advance, and vary in size. This approach has been taken by at least ten countries⁹ and at least 12 states/provinces in the United States, Canada and Australia.¹⁰

⁹ This includes: the United Kingdom, Denmark, Finland, France, Ireland, Mexico, Norway, Scotland, Sweden and Switzerland.

¹⁰ This includes: California, Connecticut, Hawaii, Massachusetts, Minnesota and Washington, (USA); Alberta, British Columbia, and Ontario (Canada); Australian Capital Territory, South Australia and Victoria (Australia).

We consider a series of emissions budgets is best suited to New Zealand.

While a trajectory would give a high degree of certainty for when emission reductions need to occur, reducing emissions every year by an equal amount ignores the difficulty and cost of emission reductions at different points in time and assumes costs at all points of time as equal. For example, technology advancements and reducing costs could prompt earlier action, while a lack of technological advancements or regional economy issues may require greater emission reductions to be made in the future.

Setting emissions budgets, however, offers a balance between predictability of emission reductions in the medium term and flexibility to allow for changes in technology and the economy. We therefore focus on this approach in this discussion.

The Zero Carbon Bill could set up the emissions budgeting system.

The Zero Carbon Bill could set up the emissions budgeting system, but will not specify what the level (or quota) of each emissions budget will be.

At a minimum (and apart from the roles and responsibilities discussed in chapter X), the Bill should set out:

- how far in advance emissions budgets should be set
- factors the Climate Commission is required to consider when advising on emissions budgets
- the duration of each emissions budget
- whether emissions budgets can be reviewed (and if so, how)
- accountability mechanisms that apply if emissions budgets are not met

Other considerations include:

- whether emissions reductions could be banked or carried over from one budget to the next
- the relationship between emission budgets, our international climate change commitment and the New Zealand Emission Trading Scheme (NZ ETS).

This section will cover these design aspects of the emissions budgets mechanism. As set out in chapter X, roles and responsibilities are expected to be similar to the UK approach whereby:

- the Climate Commission has a role to provide expert advice and recommendations
- the Government then sets emissions budgets based on those recommendations (with clear parameters to adhere to those recommendations unless there are clear reasons not to that would need to be transparently explained)
- the Climate Commission has a monitoring and review role.

There are a number of trade-offs that impact on the design of the emissions budget mechanism. These considerations will impact on key components of the emissions budgets mechanism, and include:

- **Predictability versus flexibility:** Emissions budgets require the right balance of predictability and flexibility. On one hand, they need to provide a degree of predictability around the short and medium-term abatement task so businesses and decision-makers can plan ahead. s 9(2)(f)(iv)
- **Accountability versus administrative burden:** It will be important to ensure that progress towards meeting emissions budgets is open to transparent review. There is a balance to strike between regular monitoring and review (for transparency and accountability), and the administrative cost (and potential unpredictability) through too frequent review cycles. A further challenge here is the delay caused by collecting and reconciling emissions data, which causes a time lag in the data available for monitoring emissions.

How far in advance should emissions budgets be set?

A key design choice for emissions budgets is how far into the future they are set. Too short a period provides less predictability for investors and decision makers. Too long a period (over 15 years) makes it difficult to reliably predict how the economy and technology will change in the future.

As a point of reference, it takes roughly five to ten years from design and consenting to final construction of major infrastructure. Similarly, the life-time of expensive infrastructure (such as industrial boilers and electricity power stations) will typically be more than 25 years. This suggests that a 'look-ahead' period of greater than 10 years is desirable to reduce investor uncertainty. However, we also know that it is also very hard to predict the effectiveness and costs of technological advancements beyond a 15 year period into the future.

For these reasons, our proposed approach is to set a minimum 'look-ahead' timeframe of between 10 and 15 years. We see a 10 to 15 year 'look-ahead' period as a good compromise between giving certainty to businesses and investors, while also recognising the uncertainty involved in assessing emission reduction costs beyond 15 years. This is shown in Figure 8 below.

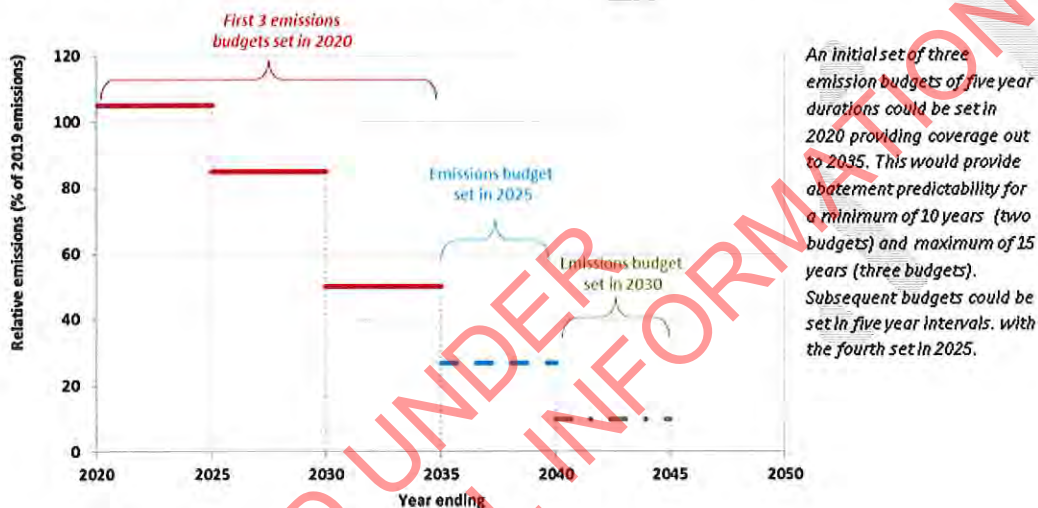


Figure 1 - Overview of the emissions budgets process

This method of setting emissions budgets depoliticises the process. The Government of the day will not be able to set or influence the budget for their political term as it is set at least ten years beforehand.

How long should each emissions budget be for, and when should they be reviewed?

The length of individual emissions budgets is a trade-off between the flexibility provided by having more budget periods, and the additional administrative cost of setting and monitoring more frequent budgets.

The current Parliamentary Commissioner for the Environment has recommended emissions budgets to be developed and adopted every six years, together with "the requirement for an interim update and review of policy implementation by the Government three years after each budget is adopted."¹¹ This approach has the potential advantage of allowing a new government to take stock, and ownership, of progress and next steps. However, it would create a considerable administrative burden – as a comparison, the NZ ETS reviews

¹¹ March 2018, "A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and beyond", Parliamentary Commissioner for the Environment.

are resource intensive, taking approximately a year at minimum to complete. It would also lead to lower medium-term predictability for businesses and individuals.

We consider that a five-year emission budget duration with a five-year review cycle is a good compromise. Emission budget reviews would happen at the same time as the emission budgets are set. It is longer than our current electoral cycle, and balances administrative costs with flexibility to tailor budgets. It can also help to align the timing of emissions budgets with other policy instruments, for example the setting of Nationally Determined Contributions (NDC) under the Paris Agreement (discussed in more detail in a later section of this chapter).

How should emissions budgets be monitored?

Monitoring of emissions is required to determine whether New Zealand is on track (or not) to meet a particular emission budget.

New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations) and could be used for this purpose. While this is the most accurate data available, it is (at best) approximately fifteen months old because of the time it takes to collect and process the data that feeds into this Inventory.

Less accurate emissions data may be available on a shorter timeframe. For example, the Energy and Industrial Process and Product Use (IPPU) emissions could be updated annually with data that is less than six months old. It is important to note that this type of provisional data may not be available for all sectors. But it is expected that both monitoring processes above are likely to have a role in determining whether New Zealand is on track (or not) to meet a particular emissions budget.

We propose that an annual report be produced to show how New Zealand is tracking towards the emission budget.

Can emissions budgets be revised?

Emissions budgets are set more than a decade in advance, and the further out we look i.e. beyond 10 years, the less certain the abatement costs. There may be value in having some flexibility (e.g. revising budgets). Allowing emissions budgets to be revised in some circumstances could:

- minimise the risk of overly conservative budgets being set
- allow for a more adaptive approach that can respond to changing circumstances (e.g. unanticipated technological innovation).

To minimise uncertainty for investors, this ability to revise future budgets needs to be constrained by specific conditions. For example, the Bill could set out that any emissions budget period that has begun, or that overlaps with the term of the government of the day, cannot be modified. It could also provide a maximum level of changes that can be made (e.g. no more than a deviation of 15%). The process to review the third budget will ensure that the evidence on costs is reassessed periodically and should mitigate the risk of unexpected cost spikes.

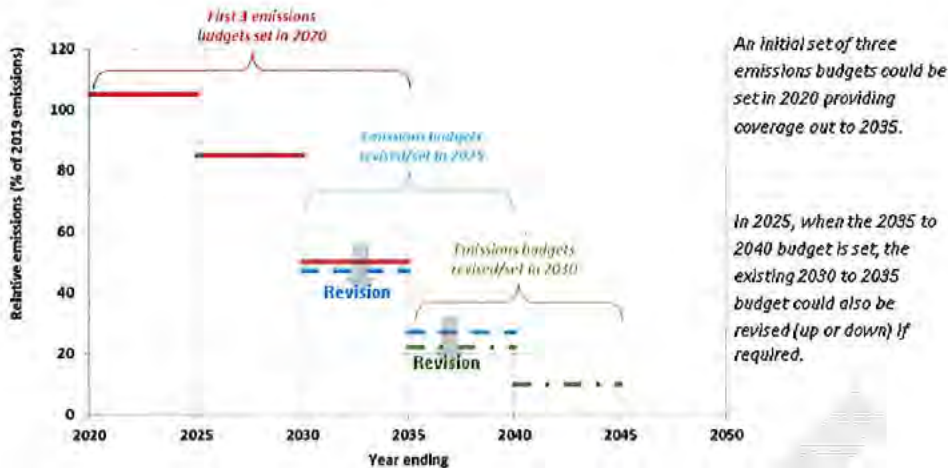


Figure 2 - Overview of the revision of future emission budgets

Can emissions reductions be banked or borrowed from one budget to the next?

It is not necessary to precisely meet emissions budgets. As long as the emission reduction trajectory is aligned with the path set out by the three budgets, any small discrepancies between emission budgets and actual emissions make minimal difference in the short term.

If a strong compliance regime was implemented, this could cause governments to try to exactly meet a budget, even if this comes at a high cost. To use a hypothetical example, the government of the day could enforce ‘car-less days’ for a few months in order to meet an emission budget. This would lead to significant costs and disruptions to people’s lives, and minimal benefits with reducing emissions at the time rather than six months later.

Given the perverse outcomes that can result from very strict adherence to emissions budgets, we propose to introduce a predetermined ‘leniency threshold’ (e.g. of 2%). Any shortfall in abatement would still be reported on (and effectively borrowed from the next emissions budget), but the accountability mechanisms would not apply unless the budget was missed by more than the leniency threshold.

Conversely, if more emissions reductions are achieved than the emissions budget required, then the excess abatement would be carried over to the next emission budget.

How much should the focus be on reducing our emissions within New Zealand?

An important decision for any Government is the choice between reducing emissions in New Zealand (i.e. domestic abatement) and the purchasing emissions reductions from overseas (i.e. through the use of international emission reduction units). This Government has indicated that it will place primary reliance on reducing emissions in New Zealand in order to reach our 2050 target. ^{s 9(2)(g)(i)}

^{s 9(2)(g)(i)}

Instead of allowing a blanket use of international units, or specifying that all budgets must be met entirely through domestic emissions reductions, the Climate Change Commission could be tasked with providing expert advice and recommendations on the upper limit of international units that could be used within a budget period (based on the available evidence at the time). This would be similar to the approach taken in the UK, where the UK Climate Commission has recommended that no international units could be used for the first four carbon budgets and a maximum of 2.5% of the fifth budget could be met by international units. As with the UK example, the government of the day would be required to explain its decision if it deviates from the advice and recommendations of the Commission (see chapter x).

How would emissions budgets align with the New Zealand Emissions Trading Scheme (NZ ETS)?

s 9(2)(g)(i)

We are making improvements to the NZ ETS that will give the Government the tools to align the amount of units¹² in the NZ ETS with our emission budgets.

How would emissions budgets align with our international commitments?

New Zealand ratified the Paris Agreement in October 2016 and committed to reducing our emissions to 30 percent below 2005 levels by 2030. This commitment is our first Nationally Determined Contribution (NDC) under the Paris Agreement, and covers the 2021 – 2030 period. New Zealand's next NDC will need to be set in 2025 in either five or ten year increments. This is compatible with the proposed five year domestic emissions budget periods.

Domestic emissions budgets and international NDCs have different purposes and do not need to be exactly the same. Importantly, domestic emissions budgets could have some flexibility (e.g. the ability to be revised up or down) whereas NDCs cannot be revised down.

While emissions budgets do not need to be wholly aligned with NDCs, it will be useful for future domestic emissions budgets and international NDCs to inform each other.

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¹² A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

The adaptation toolkit

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change.
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.
- We need some core adaptation provisions in law to ensure we manage these risks in a systematic way. The proposed provisions include:
 - a National Climate Change Risk Assessment
 - a National Adaptation Plan
 - regular review of progress towards implementing the National Adaptation Plan, and
 - a reporting power under which specified organisations regularly report on what they are doing to prepare for climate change impacts.

We are seeking your views on:

- the parameters, scope and scale of each of the adaptation provisions the respective roles of central government and the Climate Change Commission
- the respective roles of central government and the Climate Change Commission.

The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

We need to ensure New Zealand is resilient to the impacts of climate change

In the last 100 years, New Zealand's average temperature has risen by 1 degree, and seas have risen around 14-22 cm. The impacts that these and other changes to our climate and oceans have pose a number of risks to communities, human health, infrastructure, the natural environment, culture and the economy.

The mid-range projected sea-level rise over the next 50 years is 30 cm. The November 2015 report by the Parliamentary Commissioner for the Environment (PCE) *'Preparing New Zealand for Rising Seas: Certainty and Uncertainty'* indicated that the cost of replacing every building situated within 0.5 metres of the spring high tide mark is \$3 billion. Replacing every building within 1.5 metres of the spring high tide mark would cost \$19 billion.

We can also expect to see more damage and disruption to assets and critical infrastructure with more frequent and more intense extreme weather events. Over the last 10 years the costs of weather events to the land transport network have increased from about \$20 million per annum to over \$90 million per annum.

In 2016, the previous Government established a Climate Change Adaptation Technical Working Group (CCATWG) to provide advice on building New Zealand's resilience to the effects of climate change while sustainably growing our economy. The CCATWG's Stocktake Report¹³ identified the actions New Zealand are already taking to adapt as well as gaps and barriers which could potentially increase our exposure to climate

¹³ <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

risks. The Group's Final Report was publicly released in May 2018. Building on the findings of the Stocktake Report, it identifies a series of actions for New Zealand to increase resilience and adapt to climate change.

The Zero Carbon Bill can set up an adaptation toolkit to help us manage risks in a systematic way

The Zero Carbon Bill can put into law some aspects of national adaptation action (the 'adaptation toolkit').

Not all adaptation action required to achieve a climate-resilient economy is proposed here. We consider the following aspects are appropriate for this piece of legislation:

1. a regularly updated National Climate Change Risk Assessment
2. a regularly updated National Adaptation Plan in which prioritised actions are informed by the risk assessment
3. regular review of progress towards implementing the National Adaptation Plan
4. a reporting power under which specified organisations regularly report on what they are doing to prepare for climate change impacts.

The Bill will also set out:

- who updates the National Climate Change Risk Assessment and National Adaptation Plan, and when
- who reviews the National Adaptation Plan, and when
- who determines which organisations are subject to the reporting power and when, whether this is mandatory or voluntary, and who reviews the reports.

CASE STUDY: ADAPTATION IN THE UK CLIMATE CHANGE ACT 2008

The above proposals are similar to the adaptation policy settings of the UK Climate Change Act 2008.

Part 4 of the UK Climate Change Act puts in place a policy framework to promote adaptation action, consisting of:

- The UK Climate Change Risk Assessment (CCRA) – a five yearly assessment of the major risks and opportunities from climate change to the UK
- The National Adaptation Programme (NAP) – the Government's strategy to address the main risks and opportunities as identified by the CCRA. Also produced every five years. Progress is reported back to Parliament every two years
- The UK Adaptation Reporting Power (ARP) – requires public service organisations to produce reports on what they are doing to adapt to climate change.

What is the National Climate Change Risk Assessment and what could it cover?

Climate change exacerbates existing risks and creates new risks.¹⁴ Understanding how significant these risks will be for New Zealanders and how these will change over time is essential for a climate resilient New Zealand.

At the moment, there is no nationally consistent understanding of risk, exposure and vulnerability to climate change. Information in relation to some climate risks (e.g. sea level rise) is reasonably well developed

¹⁴ IPCC 2014 reference.

although regionally inconsistent, whereas in relation to other risks (e.g. to biosecurity and health) is much less developed.

There are also gaps in our knowledge, including the potential costs to the economy over the medium and long term if no action is taken now to adapt, and potential biosecurity threats to our sectors and natural systems. Information that we do have is not always readily available in a format that supports decision-making.

In order to adequately and strategically plan for the effects of climate change, we need to determine how exposed people, infrastructure, the natural environment and the economy are to climate change risks. This information needs to be accessible and standardised to best support decision-makers (including iwi/Māori, communities, transport and infrastructure sectors, and central and local government).

The proposed National Climate Change Risk Assessment will inform where New Zealand should invest its effort to reduce climate risk and minimise the cost of disaster response and recovery. It would be the first step towards an aligned approach across all sectors to help stimulate action in a systematic way. This assessment would provide the necessary foundation for investment, decision-making and would guide future work. It will provide the necessary evidence base to help:

- plan and prioritise actions to reduce exposure and vulnerability of existing and future communities in response to climate change risks
- more effectively communicate current and future risks and opportunities
- guide investment decision-making.

The National Climate Change Risk Assessment would be in a publicly available report and updated at five yearly intervals. We propose that the Climate Change Commission 'own' the risk assessments. s 9(2)(i)

s 9(2)(i)

What is the National Adaptation Plan and what could it cover?

Climate change adaptation is not currently integrated into many central government agency objectives. This means sectors operate within regulatory frameworks and policies which are not well aligned. This makes it difficult for central and local government and sectors to proactively organise themselves and take action.

s 9(2)(g)(i)

s 9(2)(g)(i) Actions that have been taken to adapt have been generally reactive. The current system is not delivering efficient assistance or fostering certainty for councils and communities. There are considerable gaps in our planning preparedness, and these will be barriers to ensuring New Zealand's resilience if they are not addressed.

We need a planned response to climate change risks. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, we propose a National Adaptation Plan be developed. The National Adaptation Plan will:

- identify priority areas for addressing risk, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks

- help clarify roles and responsibilities on climate change adaptation, determining who needs to act on what and when
- be designed to anticipate risks, and be proactive and comprehensive
- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

The National Adaptation Plan will outline actions considered to be most effective at reducing the risks as identified in the climate change risk assessment. We propose it is 'owned' by Government and developed in consultation with a range of key groups and stakeholders. We propose it is updated at 5 yearly intervals, to synchronise with the 5-yearly risk assessment process.

The National Adaptation Plan will be cognisant of the proposed Strategies to achieve the carbon budgets. Synchronicity between climate change mitigation and adaptation policies is important to ensure action in one area does not have unintended, detrimental consequences in the other, making policy implementation difficult.

Ongoing evaluation of how the National Adaptation Plan is being implemented will be necessary to ensure it is enduring and leads to effective adaptation action. s 9(2)(f)(iv)

s 9(2)(f)(iv)

s 9(2)(f)(iv)

. The outcomes of each review will be used to update the next iteration of Plan, reprioritising actions and resources as required.

What is the adaptation reporting power?

Currently, we don't know what adaptation action is being taken across key organisations in New Zealand. There is a particular need to encourage organisations with significant infrastructure assets that are vulnerable to climate, to assess and manage their climate risk.

As an option to address this, we propose to introduce a mechanism (called the adaptation reporting power), which could be voluntary or mandatory, to encourage organisations of a public nature with climate-sensitive responsibilities (such as electricity distribution network providers, or road and rail providers) to take appropriate actions to adapt to the impacts of climate change as part of their risk management processes.

Under this proposal the Act would give the Chief Executive of the Ministry for the Environment (or an alternative authority) the power to direct a limited number of organisations to produce reports detailing:

- the current and future predicted impacts of climate change on their organisation
- proposals and policies for adapting to climate change
- an assessment of progress towards implementing the policies and proposals.

Having such an adaptation reporting power in primary legislation gives the government a lever to ensure climate change impacts are being considered by key organisations on a targeted basis.

s 9(2)(g)(i)

The discretionary power of selection would rest with the Chief Executive of the Ministry for the Environment (or alternative authority), based on a clear methodology. The methodology would also specify how often the reporting power would be exercised. We propose this reporting be carried out on at regular intervals so the results can be fed into the proposed National Climate Change Risk Assessment and proposed National

Adaptation Plan. Some organisations may be directed to report only once; some may need to report on a regular basis.

The proposed adaptation reporting power could be exercised as a mandatory or a voluntary obligation. Experience in the UK, with such a reporting power found that mandatory reporting delivered a higher standard of reports giving government a greater understanding of adaption action being taken across sectors.

s 9(2)(g)(i)

s 9(2)(g)(i) We expect the administrative burden to be low as the Ministry for the Environment (or alternate authority) would determine the number of organisations that will be directed to report, thereby managing volumes.

The reports will reveal how 'ready' organisations are with respect to managing climate risk. They will help government design supportive policies for adaptation and ensure that the existing regulatory environment encourages adaptation appropriately.

The benefits of the adaptation reporting power (for organisations that report under it) are that it:

- enables organisations to identify and examine their risk (risks to their assets, buildings, staff, services and operations, their supply lines, stakeholders and regulatory functions)
- helps promote organisational reputation (through providing evidence of how organisations are preparing for climate change and extreme weather impacts).

HOW WOULD ALL THE ELEMENTS OF THE ADAPATION TOOLKIT FIT TOGETHER?



Key:
CCRA = Climate Change Risk Assessment
NAP = National Adaptation Plan
ARP = Adaptation Reporting Power

A new Climate Change Commission, and how it works with Government

SUMMARY

The Zero Carbon Bill is an opportunity to make sure our institutional frameworks and laws are set up to help us meet our long term climate change goals.

- We propose to create a requirement for Government to produce and maintain a 2050 Climate Change Transition Strategy. This would be supported by five-yearly plans to meet emissions budgets and address adaptation risks.
- We also propose to establish a new independent Climate Change Commission (the Commission) to provide independent expert advice, and hold Governments to account towards progress.
- There are a range of roles that the Commission could take, from advisory to decision making. We propose a core set of advisory functions, and a requirement that the Government provide public responses to the Commission's advice.
- Under this model, the Commission would:
 - provide advice to Government on the level of emissions budgets
 - monitor New Zealand's progress towards emissions budgets
 - monitor New Zealand's progress towards addressing adaptation risks
 - provide advice to Government on issues related to climate change as requested.
- There are also a range of roles that the Commission could play in respect of the NZ Emissions Trading Scheme (NZ ETS), from advisory to decision making.

We are seeking your views on:

- the proposed set of core functions for the Commission
- the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- how Commissioners should be appointed and what expertise they need.

A full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx

We have an opportunity to make sure our laws and institutions are set up to support our economic transition

Reaching our long term climate change goals will require broad changes across our economy and society. It is important we make this transition in a smooth and efficient way, avoiding abrupt changes that could have negative impacts on New Zealand.

§ 9(2)(g)(i)

It is a long-term process that will rely on decisions made by multiple Parliaments over the next 30 years. Part of the challenge is removing some of the politics, while making sure the government of the day is free to make decisions about how it wants the transition to be made and how it meets its other commitments.

The Zero Carbon Act proposes to establish a new 2050 emissions reduction target, but a target by itself is not enough. New Zealanders need sight of how we are going to meet the target, and confidence that the pathway is going to remain broadly consistent across political cycles.

We also need coherence across Government and New Zealand's laws to ensure that everything is pulling in the same direction. The development of climate change policy is distributed across different Government agencies, and there is currently no formal requirement to show how policies being developed across the economy will make progress towards meeting our emissions reduction commitments.

Alongside what is already in train, more stability can be built into our climate change policy in two key ways:

- requiring Government to take action in a planned, proactive and transparent way
- introducing a new independent body to provide checks and balances and keep us on track towards meeting our climate change goals.

In designing what's right for New Zealand, we will need to ensure it works for our particular circumstances. For example, we have an unusual emission profile for a developed nation with a high proportion of agricultural emissions. We start with fewer easy wins than others countries such as the UK, who were able to focus on decarbonising their energy sector in their early carbon budgets. s 9(2)(g)(i)

s 9(2)(g)(i) any new institutions and architecture needs to be enduring enough to address these challenges, underpinned by widespread community and business support.

The Zero Carbon Bill proposes a new Climate Change Commission and 2050 Climate Change Transition Strategy

The Zero Carbon Bill proposes to:

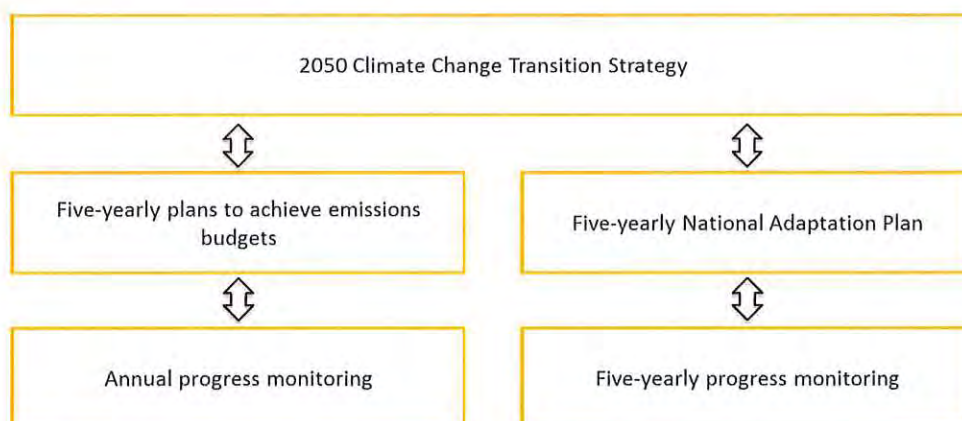
- require Government to produce a 2050 Climate Change Transition Strategy, and clear plans on how it intends to achieve emissions budgets and adapt to the impacts of a changing climate
- establish a new Climate Change Commission to provide independent expert advice, and ensure that we review and monitor progress based on robust evidence.

2050 Climate Change Transition Strategy

The transition to a low emissions, resilient economy will require deep and broad changes across our economy and society. It is clear we need to act now to reduce emissions and increase our resilience to the changing climate, but it is important that decisions we make now are set in the context of the wider transformation we are trying to achieve. Plans and strategies are useful tools to help us develop a coherent overall response to climate change that reflects the magnitude of the issue.

The Zero Carbon Act could introduce a statutory requirement that the Government maintain 2050 Climate Change Transition Strategy. This could cover the period out to 2050, and set the longer-term framework within which the responses to specific issues (including emissions budgets and adaptation – discussed in more detail below) can be set out.

The diagram below sets out how the long term strategy, plans and monitoring could fit together.



An independent Climate Change Commission

A Commission is a body set up by Government which usually operates at arms-length from Government in order to provide independent advice. Examples of existing Commissions in New Zealand include the Human Rights Commission and the Productivity Commission.

The former and current Parliamentary Commissioners for the Environment have proposed an independent Climate Change Commission in New Zealand (similar to the UK Committee on Climate Change) to address the long-term nature of the climate change challenge.¹⁵ A range of stakeholders, including a number of the business community, have indicated their support for such a model.

CASE STUDY: THE UK COMMITTEE ON CLIMATE CHANGE

The United Kingdom, Australia, Denmark, Ireland, Finland, Sweden and the Philippines all have established some form of independent body to support climate change outcomes.

The UK's Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the Parliamentary Commissioner for the Environment and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee has no executive (decision-making) functions. In deciding the size of carbon budgets, the responsible Secretary of State (i.e. Minister) must take into account advice from the UK Committee, but remains the ultimate decision-maker. However, if the Secretary of State proposes a budget that does not conform with the advice of the Committee, he or she must publish a statement setting out the reasons for that decision.

The Climate Change Commission will need to become a trusted and stable part of New Zealand's Government institutions if it is to be successful. The key success factors for the Commission include:

- political consensus on its role and functions to ensure its durability

¹⁵ The Parliamentary Commissioner for the Environment, March 2018, *A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond*

- independence in how it is able to operate at arms-length from Government, with stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process
- a capable and proportionate secretariat
- access to good quality data and arrangements in place to support the sharing of data (including with government departments).

A number of these features could be set out in the Zero Carbon Bill:

- the role of the Commission (i.e. powers and level of independence)
- the functions of the Commission
- the expertise of the Commissioners
- the process to appoint Commissioners.

These components are discussed in more detail below.

What role should the Commission play? What level of independence and powers should it have?

There is a range of roles the Commission could take, from advising Government on recommended actions, through to making binding decisions or setting policy under its own authority, at arms-length from Government.

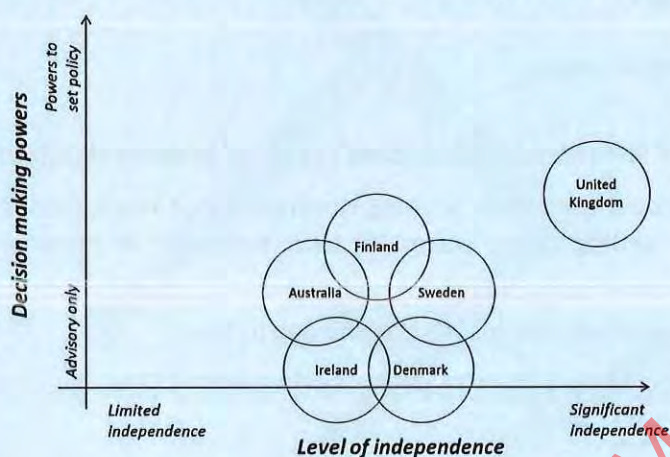
We are seeking your views on the most appropriate role for the Commission to take.

CASE STUDY: WHAT MODELS HAVE OTHER COUNTRIES ADOPTED?

There are trade-offs between how strongly the Commission is able to hold New Zealand on a path consistent with our long term goals, and the extent to which the authority to make decisions on policy is delegated to a group of appointed Commissioners.

Delegating too much authority to the Commission to make wide-ranging decisions generally made by democratically accountable bodies is likely to make it more susceptible to changes by future Parliaments, which will damage the stability we are trying to achieve. On the other hand, not giving sufficient weight and attention to the recommendations of the Commission could mean it is not effective in keeping us on track to our long term climate goals.

The diagram below illustrates where similar organisations in other jurisdictions sit on this scale.



One option is to establish an advisory model like many other countries have. This would be similar to the role of the New Zealand Parliamentary Commissioner for the Environment (PCE). At this end of the scale, expert advice is provided, but the Government is not obliged in a strong way to respond to recommendations. However, given the tough choices we may need to face at the outset, this model may not offer significant incentives to progress long-term climate change goals rather than shorter-term political imperatives.

At the other end of the spectrum, the Commission could be extended a broad range of decision-making powers. This would be similar to instances where policy is handed to an independent regulator, such as decisions on competition matters made by the Commerce Commission. None of the overseas examples have decision-making powers, and independent commentators (including the PCE and the Productivity Commission) have recommended against the Commission being given this kind of decision-making role.

The Government proposes to establish a Climate Change Commission based most closely on the UK model of an advisory institution, but with additional accountability mechanisms. This proposal is in line with the recommendations of the PCE and the Productivity Commission. Under this model, the Commission would have many significant advisory functions but no executive (i.e. decision-making) functions. There could be an exception to this in respect of the NZ ETS, which is explored in more detail below.

Under the proposal, Government would be required to seek and consider the advice of the Commission in making decisions on specific issues. Government would also be required to provide a public response to the reports of the Commission, and publish a clear rationale if it deviates from the recommendations of the Commission.

In practice this provides a significant evidential hurdle for the Government in rejecting the recommendations of the Commission. The strength of the accountability would be bolstered further by two additional requirements, which go beyond the UK model:

- specifying a timeframe by which the Government must publish a plan to achieve each emissions budget following its release
- requiring the Government to seek advice from the Commission when making changes to the NZ ETS.

There could also be other ways of further increasing accountability, and we would like to hear your views on what they could be.

What functions should the Commission have and how should Government respond?

The Commission could play a role in the following key areas:

- the 2050 target (more information on this proposal can found in chapter x)
- emissions budgets (more information on this proposal can found in chapter x)
- adaptation (more information on this proposal can found in chapter x)
- provision of advice on any other issues relating to climate change

The organisational form of the Commission will depend on its functions and powers. However, the requirement for independence, combined with the need to interact with Government to share information and resources with public sector agencies, means the most appropriate form of the Commission is likely to be an Autonomous Crown Entity, an Independent Crown Entity, or a unique entity exhibiting functions of both.

The proposed role of the Commission, and the corresponding role of Government on each of these areas is set out below. *We welcome your views on the most appropriate functions and institutional form of the Commission.*

The 2050 target

Through the Zero Carbon Bill, the Government proposes to set a new 2050 emissions reduction target in law.

Chapter x sets out the conditions which could justify a change to the 2050 target. In the event that these conditions are met, it is important that we establish a robust and inclusive process to inform any changes. The proposed process is:

1. Government seeks the advice of the Commission on the most appropriate level for the 2050 target.
2. Government publishes a proposal for the new level of target. Where the proposed level differs from the recommendation of the Commission, this report should set out the reasons for the differences.
3. Government begins the Parliamentary process of legislating a new target.

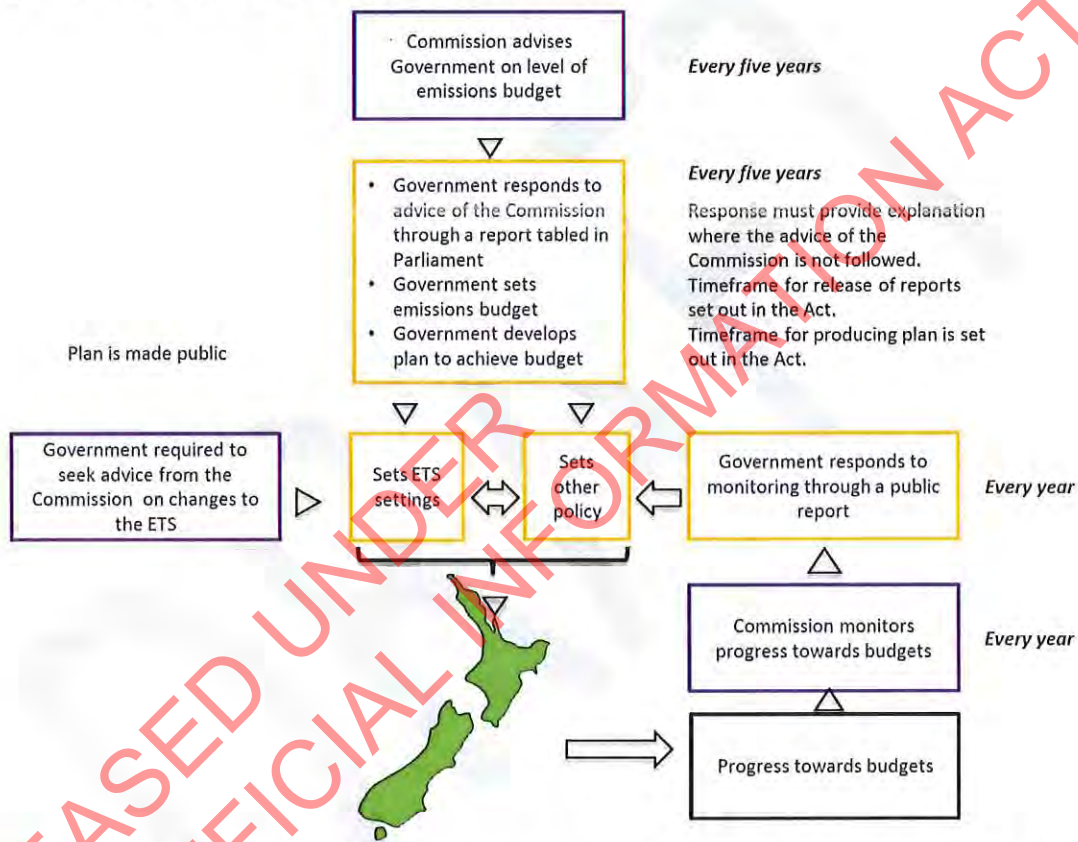
Emissions budgets

The Commission could also provide independent advice on the most appropriate level for each emissions budget, and independent monitoring of New Zealand's progress towards meeting these. The proposed process and roles in the setting of emissions budgets is:

1. Climate Commission provides advice to Government on the most appropriate level of an emissions budget. This advice could include:
 - the extent to which international emissions reductions should be used to meet the budget;
 - the extent to which sectors covered by the NZ ETS should reduce emissions to meet the budget; and
 - areas across the economy where there is an opportunity to make emissions reductions.

2. Government sets the emissions budget, and provides a public response to the advice of the Commission. Where the adopted budget differs from the advice of the Commission, the response should outline why this is the case.
3. Government publishes a plan to meet the emissions budget.
4. Government sets policies to achieve the emissions budget.
5. Where changes to the NZ ETS are proposed, Government seeks the advice of the Commission on what should be changed.
6. Government amends legislation to change the NZ ETS if required.
7. Businesses and consumers respond to policies.
8. Commission then monitors New Zealand’s performance against the emissions budget and publishes a report each year setting out its assessment of our progress.
9. Government publishes a response to the monitoring report of the Commission.

The diagram below sets out how this process could work.



Chapter x sets out the conditions which could explain a change to an emissions budget. In the event that these conditions are met, it is important that we establish a robust and inclusive process to inform any changes. The proposed process is:

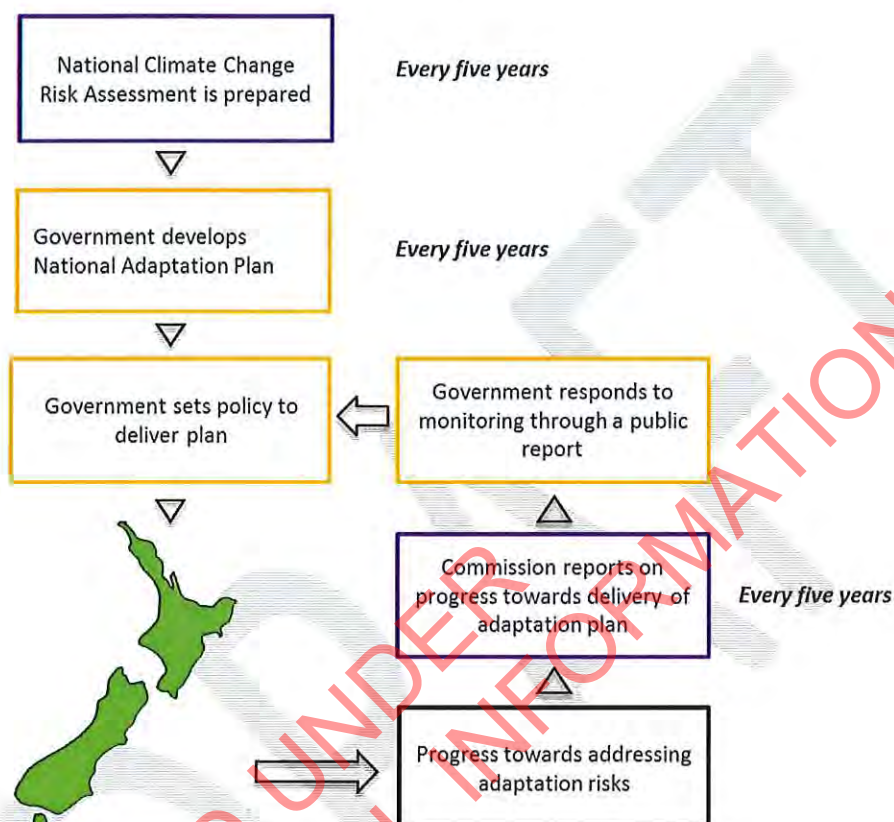
1. Government seeks the advice of the Commission on the most appropriate level for the emissions budget.
2. Government publishes a proposal for the new level of the emissions budget. Where the proposed level differs from the recommendation of the Commission, this report should set out the reasons for the differences.
3. Government makes the change to the emissions budget.

Adaptation

The Commission could also monitor New Zealand’s progress towards addressing the risks posed by climate change. The proposed process and roles for the delivery of adaptation strategies and plans is:

1. The National Climate Change Risk Assessment is undertaken (first assessment is proposed to be undertaken by the Government).
2. Government develops and publishes a National Adaptation Plan addressing the risks identified in the National Climate Change Risk Assessment
3. Commission publishes a report setting out progress towards delivering the National Adaptation Plan.
4. Government publishes a response to the monitoring report of the Commission.

The diagram below sets out how this process could work.



Provision of advice

The Commission could provide independent expert advice on issues related to climate change as requested by the Government (e.g. the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity). There could also be value in the Commission initiating its own enquiries.

What matters should the Commission take into account when providing advice?

It will be critical for decisions on climate change policy to be in-step with the broader economic strategy if we are going to achieve our intended domestic objectives for climate change action and deliver a just and inclusive transition.

In establishing the Zero Carbon Act, we have an opportunity to set out the issues that the Commission is required to consider in undertaking its work. This will help ensure its work is transparent and consistent, and supports the just and effective transition.

The UK Climate Change Act 2008 sets out the issues that the Secretary of State and UK Committee on Climate Change are required to take into account in connection with carbon budgets, and offers a useful precedent.

CASE STUDY: WHAT MATTERS NEED TO BE TAKEN INTO ACCOUNT BY THE UK COMMITTEE ON CLIMATE CHANGE?

The United Kingdom Climate Change Act 2008 sets out the issues that both the UK Government and the UK Committee on Climate Change should take into account when making decisions on carbon budgets:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy
- differences in circumstances between England, Wales, Scotland and Northern Ireland
- circumstances at European and international level
- the estimated amount of reportable emissions from international aviation and international shipping for the budgetary period or periods in question.

We are seeking your views on the most important matters that a Climate Change Commission in New Zealand should consider in undertaking its work.

These issues will inform the Commission's judgements on the extent and pace of the required changes across the economy, including any trade-offs between early and delayed action.

We consider that, in addition to matters set out in the UK precedent, in the New Zealand context it will be important for the Commission to also consider our commitments under the Paris Agreement, our obligations under the Treaty of Waitangi, as well as the new 2050 emissions reduction target. There could also be value in the Commission considering broader environmental circumstances, including the impact of any decisions on areas such as water quality.

What role could the Commission have with regard to the New Zealand Emissions Trading Scheme?

[PLACEHOLDER SECTION – SUBJECT TO CHANGE]

The emissions budgets will be the main driver of the level of emissions in New Zealand under the policy framework we are proposing for the Zero Carbon Bill. Within each budget, we will need to decide how much abatement is achieved by sectors in the NZ ETS, and how much is driven by other policy.

The NZ ETS, and in particular the amount of New Zealand Units (NZUs) available in the scheme, is a very strong tool to influence the level of emissions in New Zealand. Businesses in New Zealand covered by the NZ ETS are legally required to surrender a volume of NZUs that corresponds to the volume of greenhouse gases that they emit. s 9(2)(g)(i)

s 9(2)(g)(i)

There are a range of roles the Commission could take on in respect of the NZ ETS. This range from a formal advisory role on what NZ ETS settings will best support the achievement our targets, through to a decision-

making role about the supply of units to the market, or a mixture of both. In considering the most appropriate role of the Commission in respect of the NZ ETS, we need to consider impacts on the:

- stability and predictability in the New Zealand carbon market and climate policy
- flexibility for NZ ETS policy settings to be adjusted in response to exceptional circumstances
- ability to manage fiscal implications for the Crown, and
- confidence in and stability of the Commission.

s 9(2)(g)(i)

The final decisions on the Commission's role on the NZ ETS will need to consider how the policy framework as a whole fits together – including the 2050 target, our international commitments, the emissions budgets and the NZ ETS.

What expertise should the Commission have?

The credibility of the Commission depends in large part on its membership: Commissioners would need to have a high level of standing in society, and be seen as experts in their fields as opposed to stakeholders representing a particular interest group. Commissioners will also need strong interpersonal and communication skills, and be open to having their own views challenged.

The expertise on the Commission will need to reflect New Zealand's circumstances, including our emissions profile, economic and social circumstances, responsibilities under the Treaty of Waitangi, the roles of local and central Government, and our developing response to adapting to climate change.

CASE STUDY: EXPERTISE OF THE UK COMMITTEE ON CLIMATE CHANGE

The United Kingdom Climate Change Act 2008 sets out the desirable knowledge and experience on the United Kingdom Committee on Climate Change:

In appointing a member, the national authorities must have regard to the desirability of securing that the Committee (taken as a whole) has experience in or knowledge of the following—

- *business competitiveness*
- *climate change policy at national and international level, and in particular the social impacts of such policy*
- *climate science, and other branches of environmental science*
- *differences in circumstances between England, Wales, Scotland and Northern Ireland and the capacity of national authorities to take action in relation to climate change*
- *economic analysis and forecasting*
- *emissions trading*
- *energy production and supply*
- *financial investment*
- *technology development and diffusion.*

In the UK there is also a sub-committee on adaptation, which includes members in addition to those on the committee.

Our proposed list of essential expertise to be represented on the Commission also includes specific consideration of adaptation issues such as planning, insurance and local government. The proposed list is set out below:

- Climate change policy (including carbon pricing)
- Resource economics and impacts (including social impacts, labour markets and distribution)
- Te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- International competitiveness
- Climate and environmental science
- Experience with addressing adaptation challenges
- Community engagement
- Risk management
- Engineering/infrastructure
- Sector specific knowledge on transport, energy production and supply, forestry, and agriculture

Desirable, but non-essential, expertise could include:

- Technology development and diffusion
- Business competitiveness
- Financial investment
- Behavioural economics

This proposal aligns with the recommendation of the PCE¹⁶, who suggested that the relevant experience be set out in the Act, and include “relevant areas such as economic forecasting and climate science, including the Treaty of Waitangi and tikanga Māori”.

¹⁶ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

How should Commissioners be appointed?

A transparent and robust appointment process will be an important contributor to the credibility of the Commission. There are a range of options for how the appointment process could be specified in legislation, from the responsible Minister making the appointment, through to the Governor General.

Given the importance of the independence of the Commissioners, the following appointment process is proposed:

- An independent committee provides nominations for the appointments to the Minister for Climate Change. The nominating committee is made up of at least four people with relevant skills and experience, including the Chair of the Commission unless that position is vacant.
- The Minister consults on the nominations with representatives of other political parties in Parliament, with the aim of gaining cross-party support.
- Commissioners are appointed by the Governor General on the recommendation of the Minister for Climate Change.

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PART FOUR: Next steps

Your feedback will help shape the Zero Carbon Bill

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill.

By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

WHAT OTHER ACTION CAN YOU TAKE NOW?

Individual action / Positive change from businesses

- agriculture innovations (Prod Comm report)
- industrial scale heat pumps replacing fossil fuel use: Heller's and Verkerk's Ashburton meats or hospitals (EECA example)
- Some SBC companies setting voluntary carbon targets (EECA examples)

Government enabling climate action

A new initiative, the Green Investment Fund, will provide public funding (and encourage private funding) to invest in projects and businesses that will reduce climate pollution and increase New Zealand's resilience to the changing climate.

Appendices

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References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

Draft questions [TBA]

Emissions budgets

Do we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target?

→ Select:

- Yes
 - Why? [optional comment box]
- No
 - Why? [optional comment box]
- I'm undecided / I support something else [optional comment box]

Is the look-ahead period (15 years maximum, and 10 years minimum) sufficient to make informed investment decisions?

Do you agree with the proposal of five-year emission budgets, or do you have suggestions for an alternative duration (if so what)?

Is the approach to monitoring budgets annually, with a comprehensive review every five years (in step with budget setting) appropriate?

Do you support the proposal for emissions budgets to be revised (to provide a balance between predictability and flexibility)?

Do you support the proposal for 'banking and borrowing' between emissions budgets?

Do you have any other comments in relation to the need for, or design of, emissions budgets?

Commission

The Government has proposed that the Commission has a number of core advisory and monitoring functions.

Which ones do you support?

→ Tick all that apply:

- Advising the Government on the level of long-term emissions reduction targets, for example subsequent targets to the proposed 2050 target, and the emissions reduction commitments New Zealand makes under the Paris Agreement.
- Advising on carbon budgets and areas of policy focus needed to achieve carbon budgets.
- Advising on policy parameters in the NZ Emissions Trading Scheme, for example the supply of units into the scheme and any price limits.
- Advising Government on issues relating to climate change, for example the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity.
- Monitoring New Zealand's progress towards carbon budgets and publishing annual reports on this.
- Monitoring progress towards delivering adaptation strategies and plans.

The Government will be required to:

- seek and consider the advice of the Commission in making decisions (including changes to the NZ ETS)
- provide a public response to the reports of the Commission, and provide justification if it deviates from the recommendations of the Commission
- publish a plan to achieve each emissions budget within a certain timeframe following the release of each budget
- publish a national adaptation plan to address climate risks, informed by the national risk assessment.

Do you agree with these requirements?

→ Select:

- Yes
-Why? [optional comment box]
- No
-Why? [optional comment box]
- I'm undecided / I support something else [optional comment box]

The Commission could also have an additional role in deciding the supply of units in the NZ ETS. Do you think the Commission should have this additional decision-making role? Why or why not?

→ Select:

- [Comment box]

Do you think there are any functions that are missing?

- [Comment box]

What are the most important considerations that the Commission to take into account or matters it must have regard to when undertaking its work or making decisions under the legislation?

- [Comment box]

Our proposed appointment process is X. Do you agree with the proposed appointment process?

→ Select:

- Yes
-Why? [optional comment box]
- No
-Why? [optional comment box]
- I'm undecided

We propose that Commissioners will need to have expertise in Y. Do you agree with list of skills proposed for Commissioners? What do you think the most important skillsets required are?

- [Comment box]

Adaptation

The government has proposed that the Zero Carbon Bill include a number of functions to help us adapt to climate change: which do you support?

→ Tick all that apply

- A National Climate Change Risk Assessment
- A National Adaptation Plan
- The ability to scrutinise the plan
- A reporting power

We propose that the National Climate Change Risk Assessment include the following: which do you support?

→ Tick all that apply

We propose that Government prepares a National Adaptation Plan. Do you want to be part of this process?

PART TWO: Proposals - WORKING DRAFT

A new 2050 target

SUMMARY

If we are to reach net zero emissions in the second half of this century, a deep and broad transition is needed across the New Zealand economy.

The transition will bring some challenges.

- s 9(2)(g)(i) [**Placeholder: awaiting NZIER modelling results, expected early May].
- s 9(2)(g)(i)

It will also bring opportunities.

- New Zealand will benefit compared to other countries in our renewable electricity, forestry and agricultural science sectors. International evidence suggests a strong link between having strong emissions policies and increased rates of innovation. s 9(2)(g)(i)
- We can also expect wider upsides to society relating to health, congestion and environmental benefits.

Including a new target in the Zero Carbon Bill provides a clear commitment to transition to lower emissions.

- Government has committed to ensuring this is a just transition, and will work with businesses, unions, iwi, regional and local councils and government support agencies to make sure those affected are supported through this change.
- This target, if supported by plans and policies to achieve it, will help make sure New Zealand makes transition in a smooth and efficient way.
- We have options for the form of the target, including which greenhouse gases it covers, and whether it distinguishes between different sectors of the economy.
- We also have a decision about the level of the target.

We are seeking the public's view on the form and level of the target.

The Zero Carbon Bill proposes to put into law a new target for 2050

Setting a new 2050 target is a first step in setting up a pathway towards transitioning to a low emissions, climate resilient New Zealand

The purpose of setting climate change targets is to drive reductions in greenhouse gas emissions. By setting a new 2050 target, New Zealand can:

- ***show leadership on climate change at home and internationally***

A new 2050 target would represent New Zealand's contribution to the global effort to reduce emissions. In particular, the target would contribute to the Paris Agreement's goals, and recognise the Intergovernmental Panel on Climate Change's conclusions, for countries to mitigate the threat of climate change by: keeping global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase even further to 1.5 degrees Celsius.

- ***ensure a productive, sustainable and climate-resilient economy***

A new 2050 target would send a clear and immediate signal to the economy about New Zealand's direction and rate of travel on climate change. We would need to make sure this transition doesn't break, but rather substantially enhances the productivity and resilience of the New Zealand economy.

- ***promote a just and inclusive society***

A new 2050 target would enable New Zealanders to plan ahead by providing some predictability over the long-term about the amount of emissions reductions we need to achieve by 2050. It will help everyone understand where we are headed, and enable communities and businesses to make investment decisions accordingly.

WHY 2050?

[**Placeholder] Why address our commitments for the second half of the century in 2050 – the very first year?

Setting targets is not new to New Zealand

Over time New Zealand has made a number of commitments to reduce emissions as part of a global response to climate change. Our current international commitments are to reduce emissions to:

- 5% below 1990 levels by 2020 under the United Nations Framework Convention on Climate Change
- 11% below 1990 levels by 2030 (or 30% below 2005 levels by 2030) under the Paris Agreement.

The previous Government also set a target in 2011 to reduce emissions to 50% below 1990 levels by 2050. This target was gazetted under the Climate Change Response Act 2002, with the Government at the time acknowledging the target would need to be regularly reviewed.

We are proposing to set a new 2050 target in legislation

There are a number of legislative instruments available to New Zealand to set climate change targets. New Zealand's existing Climate Change Response Act, for instance, provides for targets to be set by gazette notice or regulation.. NZ has also in the past set legally binding targets under international agreements such as the UNFCCC's Kyoto Protocol.

To date, New Zealand has used a combination of legislative instruments and adopting targets by ratification or submission to the UNFCCC to set domestic and international climate change targets, rather than primary legislation. The advantage of using legislative instruments rather than primary legislation to set targets is that they do not entail a lengthy parliamentary process. However, targets set by legislative instruments can be amended by the Minister for Climate Change and successive governments without parliamentary scrutiny.

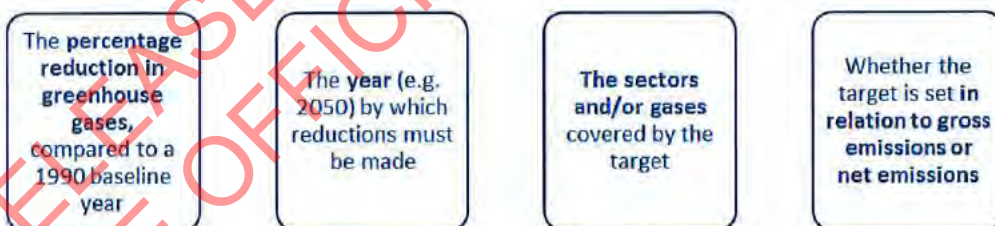
To give New Zealand's new 2050 target greater prominence and durability, we are therefore proposing that it be set in primary legislation. While a future government would still be able to change or repeal the target, this would have to be done by legislative amendment, subject to parliamentary and public scrutiny. We consider therefore that primary legislation will play an important role in:

- signalling Parliament's long-term commitment to reduce emissions and providing clarity to New Zealanders about its policy objectives
- indicating the elevated priority level of the 2050 target (in relation to other government considerations) to incentivise and influence behavioural changes, decision making, and substantive policies that reduce emissions on a continuing basis
- discouraging changes of ambition in response to short-term considerations.

We propose the target be clearly defined in law

We propose that the Zero Carbon Bill should define and set into law a new emissions reduction target or goal for New Zealand to reach by 2050. If the Government were to set the target, at a minimum, we would expect that the Bill would specify the dimensions shown in Figure 1.

Figure 1: [** figure heading]



WHAT ABOUT A NEW 2030 TARGET?

[**Placeholder] The process of setting a new 2050 target might lead New Zealand to re-examine our existing 2030 target, which is our first Nationally Determined Contribution (NDC) under the Paris Agreement for the period 2021-2030. [s 9\(2\)\(g\)\(i\)](#)

[s 9\(2\)\(g\)\(i\)](#)

There are many ways that a new 2050 target could be defined

There are many ways to define our new 2050 target, with different options available around the form and the level of the target:

- the *form* of the target is about how the 2050 target is expressed, and includes decisions around which greenhouse gases and/or sectors of the New Zealand economy should be covered.
- the *level* of the target is about the amount or percentage of emissions reductions New Zealand aims to achieve by 2050. The scale of environmental, economic and social costs of the 2050 target will be mostly determined by the level of effort New Zealand sets.

The form of the target

In terms of form, New Zealand can make choices around whether:

- the target covers the whole of New Zealand’s economy. This would require emissions reductions to be made on all greenhouse gases and in all sectors across New Zealand’s economy.
- there are separate targets for different parts of New Zealand’s economy. This is sometimes referred to as a ‘split target’ or a ‘two baskets approach’. This type of target could:
 - distinguish between the treatment of greenhouse gases in New Zealand’s economy, or
 - distinguish between the treatment of sectors of New Zealand’s economy, or
 - distinguish between the treatment of both greenhouse gases and sectors of New Zealand’s economy (i.e. is a combination of the first two approaches)

The figure below represents these choices. It also provides examples of how New Zealand could separate targets. These examples are not exhaustive, but do reflect New Zealand’s key abatement challenges owing to its emissions profile and national circumstances.

s 9(2)(f)(iv)

Figure 2: XXXXXX

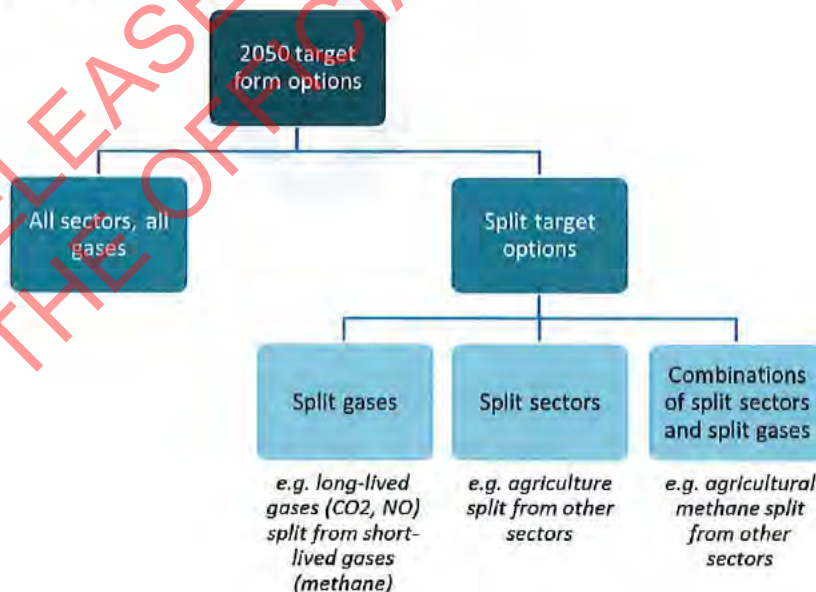


Table [X] describes the benefits and drawbacks in target definitions that involve various combinations of the above elements.

Table 1: [form of target choices]

Example Target Forms	Benefits	Drawbacks
A target covering all greenhouse gases and all sectors would require emissions reductions to be made across New Zealand's economy	<ul style="list-style-type: none"> mirrors the form of New Zealand's other (past and present) climate change targets and is s 9(2)(g)(i) aligns with Paris Agreement expectations that all developed countries cover all greenhouse gases and sectors in their respective economies allows government to make cost-effective emission reductions wherever these opportunities exist across the economy 	<ul style="list-style-type: none"> does not guarantee particular greenhouse gas emissions, which New Zealand might prefer to reduce, are in fact reduced does not make immediately clear to sectors of New Zealand's economy about how they are responsible to meet long-term emissions reductions
A target distinguishing between the treatment of agricultural methane and all other greenhouse gases would require different levels of emissions reductions to be made for each	<ul style="list-style-type: none"> s 9(2)(g)(i) 	<ul style="list-style-type: none"> s 9(2)(g)(i)
A target distinguishing between the treatment of long-lived greenhouse gases (e.g. carbon dioxide and nitrous oxide) and short-lived greenhouse gases (e.g. methane) would require different levels of emissions reductions to be made for each	<ul style="list-style-type: none"> enables New Zealand to tailor and prioritise emissions reduction targets for the various greenhouse gases based on their differing climate impacts s 9(2)(g)(i) 	<ul style="list-style-type: none"> s 9(2)(g)(i)
A target distinguishing between the treatment of the agricultural sector and all other sectors of the New Zealand economy would require different levels of emissions reductions to be made for each	<ul style="list-style-type: none"> provides immediate clarity to the agricultural sector about its prospective responsibility for long-term emissions reductions and is transparent about what reductions the sector will need to deliver in comparison to other sectors of the New Zealand economy 	<ul style="list-style-type: none"> s 9(2)(g)(i)

The level of the target

The level of the target will have a key role in determining the overall impact of the Zero Carbon Bill on the New Zealand economy. This is because the more ambitious challenging the target is, the greater the economic costs of the required transition are likely to be.

To understand the impact of different forms and levels of target, three target options have been modelled

Because it is not feasible to model all of the different target levels that could be possible to consider, we have selected three overall levels of reductions to focus on. These three levels are a:

- 50% reduction on 1990 emission levels by 2050. This is our existing target.

- 75% reduction of long-lived gases and 45% reduction in short-lived gases on 1990 emission levels by 2050.
- 100% reduction on 1990 emissions levels by 2050. This target would mean that New Zealand had no net greenhouse gas emissions by 2050.

Figure 3 [** Fig heading]



The form and level of the target will be influenced by decisions on where responsibility for the emissions reductions should lie

Regardless of the way in which our new target is expressed, the plan for transitioning to low emissions will be guided by decisions on the allocation (or not) of responsibilities for reducing emissions. s 9(2)(g)(i)

s 9(2)(g)(i)

Decisions about allocation of responsibility among sectors in the economy can be made explicit in the target itself via the target form, or can be implemented through the Government policies that are put in place to deliver the new 2050 target.

Responsibility decisions that are specified in the target itself might be stronger than those that are articulated in policies. This is because a target form that distinguishes between the treatment of greenhouse gases and/or the treatment of sectors could put greater constraints on future government policy choices (owing to the complexity of differentiated responsibilities). These constraints could help to ensure certain long-term outcomes, but they might also prove restrictive and prevent future governments from adapting to changing economic and technological conditions.

Government proposes to set the target

While the Zero Carbon Bill will define the target and who sets it, there are two main options for who is responsible for advising on the appropriate target form and level: government, or the Climate Commission.

The PCE suggests there is merit in the Commission advising on the target once the Commission has undertaken an 'urgent and searching enquiry into the treatment of the different gases that make up New Zealand's emissions profile'. A fuller discussion on the PCE's preferred approach is covered in Chapter X.

Amending the target in the face of significant shocks

The future holds a number of uncertainties around the level of environmental, economic and social risk for a given concentrations of greenhouse gases. So the Zero Carbon Bill must also detail whether we could amend and, or review New Zealand's new 2050 target in the future.

Designing a safety valve into the Bill would allow future governments to change the target under a constrained set of circumstances. These circumstances include where there are developments in scientific knowledge, international law or policy, and technological availability.

Prescribing these circumstances in law gives New Zealanders certainty that the target will not be arbitrary or swayed by short-term considerations. This approach is similar to the one taken in the UK Climate Change Act (2008).

[**Placeholder headings – more text to come.] **How to transition?**

We can estimate the opportunities and challenges of achieving more ambitious 2050 emissions targets

There are many potential transition pathways to a new 2050 target

Impact analysis considers both potential challenges and gains

Avoiding the effect of climate change on New Zealand is likely to be beneficial

The challenges: strong domestic climate action risks constraining our economy and has potential for widespread effects that will need careful management

Trade-exposed sectors could face competitiveness challenges

The upsides: A strong target could reap multiple benefits for New Zealand

Driving faster innovation in sectors exposed to a higher emission price

The wider co-benefits of transitioning to low emissions could be substantial

What could a successful transition to 2050 look like?

This section gives an indication of what it could take to meet a more ambitious 2050 target, the areas where government, businesses, households and others could take action, whether it makes sense to act early, and if so in what areas.

Compared to other countries, New Zealand already has a low-emissions electricity system and large tracts of land available (relative to population) suitable for forestry expansion. We have significant opportunities to capitalise on our already low emissions and increasingly renewable electricity system, and our excellence in agricultural science.

s-9(2)(g)(i)

Effort to drive the transition will be required across central and local government, businesses and households to reduce emissions. Government needs to set in place the right signals and policies to drive the transition.

Policy levers to drive the transition can be categorised as:

- **Emissions price**, such as a reformed Emissions Trading Scheme
- **Sector specific policies**, to drive transition by sector - targeting producers or consumers

- **Cross-cutting policies** (such as Government procurement, R&D, investment and financial market policies to grow finance in low emissions sectors)
- **Supporting policies**– to have plans in place to help manage impacts over time

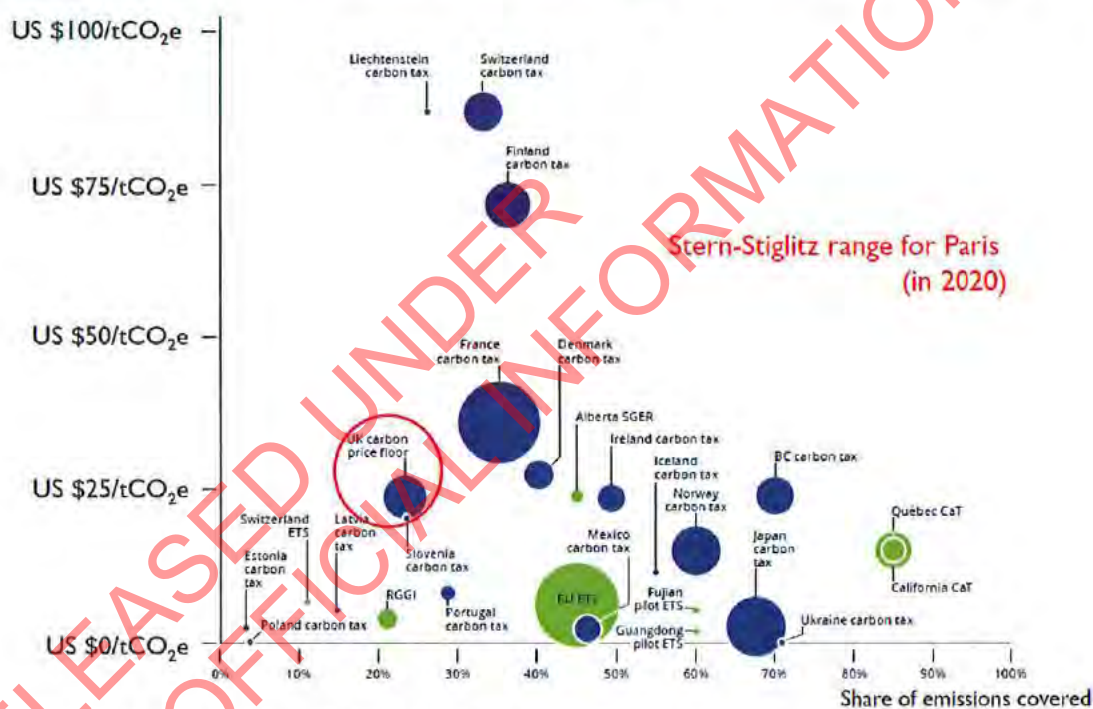
These are discussed in turn below.

Pricing emissions

A credible long-term carbon price signal will be a key aspect of the transition. Reforms of the Emissions Trading Scheme that we will be consulting on later this year and enacting in 2019 should support this.

s 9(2)(g)(i)

Figure 4: Estimated emissions price range needed to achieve the commitments made by parties to the Paris Agreement [convert chart to NZ\$]



Source: World Bank (2017) State and Trends of Carbon Pricing

Source: Hepburn presentation at Motu 13 April 18, at <https://motu.nz/assets/Uploads/Emission-Possible-Roundtable-4-Full-Presentation-2018-04-13-.pdf>

Policies to drive emissions abatement within sectors

What the change is likely to look like initially

To achieve our long term emission reduction target, emissions reduction will be required across the economy. More change will be required in some sectors than others. For example, in the energy sector

(including electricity, transport, and industrial heat), we have a lot of abatement potential, and a relatively good understanding of the types of changes that need to take place.

s 9(2)(g)(i)

This means that the majority of our near to medium-term emissions reduction will come from the energy and forestry sectors. Examples are outlined below.

Energy

Technological innovation is moving very fast in the energy sector. The biggest opportunity is the electrification of the vehicle fleet. Electric vehicles are already economic in some roles, and the costs of electric vehicles are reducing. However, there may be future roles for hydrogen fuel cell vehicles, advanced biofuels and similar technologies as there are some vehicle uses that are not ideally suited to electrification.

Other large abatement opportunities in the energy sector are:

- Renewable electricity generation - wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We have extensive high-quality untapped renewable energy resources
- Industrial process heat (e.g. milk and meat processing) - there is a lot of potential to switch to much lower emission fuels such as woody biomass or electricity.
- Energy efficiency opportunities exist across the sector from residential LED lighting to industrial scale plant. Energy efficiency can help reduce emissions directly in some cases, and in other cases will help lower costs of using cleaner energy sources.

Forestry

A key source of abatement is from increasing our forested land area. This includes plantation forests which are harvested to produce wood products, and permanent native forests. This is expected to play a key role in helping New Zealand transition towards our 2050 target.

Forestry helps buy us time until other technological developments or options become available, but we would need continued emissions reductions post 2050 to maintain net zero. We would need to find other ways to reduce emissions or continue to plant ever more land in forests.

Industrial Processes

Opportunities for reducing emissions are currently limited to relatively small efficiency gains in the industrial process part of IPPU emissions (i.e. steel, cement, fertiliser etc). This is because there are not many technology options that can currently be implemented. In contrast, in the product use sector there are viable alternatives, and improved management practices, that can markedly reduce the impacts of other high greenhouse gas potential products.

Waste

There are significant opportunities in the organic waste sector to reduce emissions. In many cases, what is currently seen as 'waste' is actually a valuable resource – one example is the anaerobic digestion of organic waste at Palmerston North's waste treatment plant where waste is reduced and 'renewable methane'

produced that is used to generate electricity.¹ **[**Placeholder: add study findings on Auckland circular economy – to come].**

Agriculture

Reducing emissions in the agriculture sector is a well-known challenge for New Zealand. There are further efficiency gains (in nitrogen management and stock efficiency) that can be made, but while these are valuable, they are insufficient to allow us to reach our targets without significant emissions offsets or land-use change.

s 9(2)(g)(i)

Cross-cutting levers to drive emissions abatement across sectors

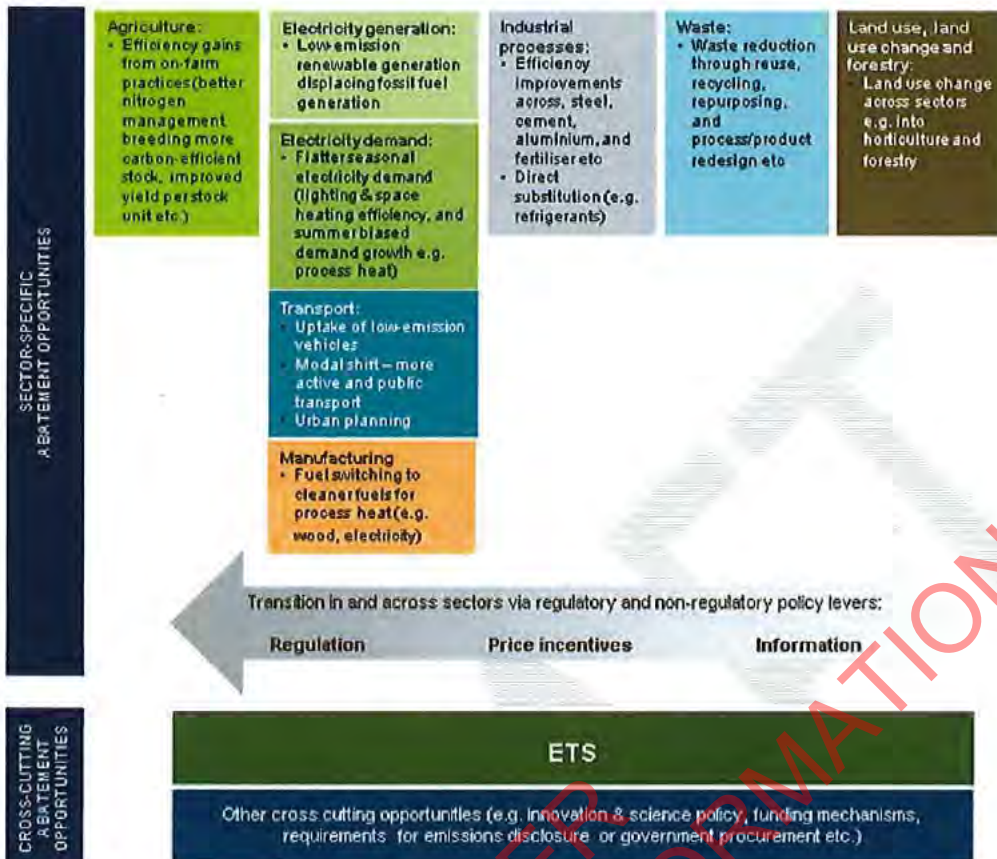
Emissions reductions can be achieved via government levers that affect multiple or all sectors: so called 'cross-cutting' actions and policies. These include:

- Government procurement (purchasing goods and services) can be used to increase the uptake of low-emissions alternatives, with the effect of creating markets for innovative, low emissions goods and services. In New Zealand, public procurement makes up roughly 36 percent of total government expenditure (OECD, 2017a).
- **s 9(2)(f)(v)**
s 9(2)(f)(iv) Examples include the Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) and its partners, who are developing agricultural emissions reducing technologies and practices.
- **[**Placeholder: ensure JB's comment is considered]** Stimulating opportunities for investment and managing financial risks:
 - Access to the necessary finance will speed the rates of innovation creation and dissemination. An initiative such as the Green Investment Fund is an example of Government capital being provided in order to unlock much greater sums of private sector capital.
 - It is important to have a financial system that is able to identify and assess climate risks. Information disclosure may have a role here.
- Training, education and employment will help the transition at the industry level, and also individuals and communities manage the transition.

[Placeholder: mention Fig 7 and give context]**

¹ <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

Figure 5: Sector specific emissions reductions policy levers will aim for, and cross-cutting levers



Making sure this will be a just transition

[**Placeholder: agree a simple definition of a just transition. Suggestion (Tamara's): 'understanding the potential impacts and having a plan to mitigate']

A just transition is a key plank of the Government's social and economic agenda and provides an opportunity to approach the transition to a low emissions economy in an inclusive and orderly way. As well as impacts from a changing climate and policies to reduce emissions, work and the workplace will continue to change due to other trends such as digital and technological change.

Changing what is produced or how it is produced inevitably creates transitions for workers, employers and regions and the costs and benefits of the transition will not be evenly shared. New employment opportunities will emerge as others are lost. Trade-offs will exist between transitioning to a **s 9(2)(g)(i)** future and key Government objectives, such as thriving regions and sharing prosperity.

These dynamics are a natural part of the economic system but it is important that transitions are well-signalled, inclusive and orderly, and this will need to be actively managed in the short to medium term. Transitions should also enable communities to make choices that reflect their values.

This points to needing to support those most affected to avoid a disruptive transition. This involves making choices around the path and speed of transition. It includes building resilience to allow the economy and New Zealanders to adapt such as through training and upskilling. It also includes supporting those most likely to be affected at the household, regional or sectoral level.

Given the widespread economic and social effects of the transition, a plan for a just transition will need to be done in close collaboration with regions, workers, businesses, investors, Māori and others.

A just and inclusive transition is likely to mean:

- Understanding the trade-offs in taking different pathways
- Understanding the potential distributional impacts of transitioning of the different pathways e.g. what are the impacts on different households, socio-economic groups, Iwi and Māori, community groups and regions
- Ensuring that policy settings provide investment predictability, so we can help businesses and communities plan ahead by being clear about what our climate change goals are now
- Ensuring that we support and manage impacts that are disproportionately borne by any one region, community, or workforce.

The setting of targets needs to be seen alongside the policies underneath that support a just transition.

[**Placeholder: Examples – EVs and PVs (households), ag change (regions). Need engagement and buy in from industries and communities too. Eg Taranaki iwi against fossil expansion].

How fast should we transition?

Action is required now in some sectors, later in others

The timing of action will matter. The speed at which we reduce our emissions will vary sector by sector, because it is affected by factors such as the availability of technologies or opportunities, and when these prove commercially viable.

It also takes long lead times in some areas as some assets have a long economic life, for example:

- many petrol fuelled cars sold this year could still be on our roads in 2040, and
- industrial coal-fired boilers installed this year could still be operating in 2050.

We will need to see abatement early mainly in the electricity, transport and forestry sectors if we are to reach the more ambitious 2050 target options, and start investing in lower emissions technologies sooner rather than later to avoid 'locking in' emissions for the lifetime of assets.

In agriculture, the challenge will be more complex, as we have fewer easy emissions reductions options. We may still need to act now, but the early task may be more to invest in research and development to increase our opportunities to reduce emissions in future. At the same time, we need to keep on the path we have of making the ongoing efficiency gains in agriculture, such as through better nitrogen management and breeding carbon-efficient stock.

Acting sooner is likely to result in significant savings

A clear target can give businesses certainty and allows planning for a smoother transition. It ensures innovation is explored sooner rather than later so New Zealand is more likely to realise opportunities in certain sectors, such as agriculture, where we already have some advantages.

The Vivid 2018 findings come to similar conclusions regarding the benefits of early action. The disruptive decarbonisation scenario, which involves acting soonest, results in both the lowest overall cumulative emissions and the lowest necessary emissions prices to achieve net zero emissions target.

SMOOTH, EARLY TRANSITION BETTER FOR NZ ECONOMY

Westpac NZ engaged with Ernst Young to assess the climate change implications of New Zealand acting sooner rather than later in reaching a net zero target.

The findings show taking early climate action where all sectors including agriculture face an emissions price saves NZ\$30 billion by 2050. Early climate action also leads to a significantly lower emissions price in the longer-term than delaying action.

While delaying climate action brings higher economic growth in the short-term, the costs of delays strongly impact GDP growth as emission-intensive sectors are exposed to more economic impacts when faced with rapid adjustment to meet a net zero target.

The key message is that a smoother, earlier transition could allow for gradual adjustment and provides greater certainty for businesses to adjust, resulting in better outcomes for the New Zealand economy.

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Appendix 4: Timelines for finalising discussion document

Date	Task
16 Apr – 20 Apr	<ul style="list-style-type: none"> We consult agencies on the first complete draft discussion document (20 - 26 April)
23 Apr – 27 Apr	<ul style="list-style-type: none"> We receive your initial feedback on first complete draft discussion document (24 April) Meeting with Tina Porou (ILG) We send you, and agencies, a revised draft discussion document and Cabinet paper with feedback incorporated from agencies (27 April)
30 Apr – 4 May	<ul style="list-style-type: none"> Climate Change Ministers' meeting: discussion of target and commission policy options for consultation (30 April) We receive your feedback on revised draft discussion document and Cabinet paper (30 April) We send you a further revised draft discussion document and Cabinet paper (4 May) You consult your colleagues on a draft Cabinet paper and discussion document (4 -9 May) We consult with agencies on draft Cabinet paper and discussion document (3-9 May)
7 May – 11 May	<ul style="list-style-type: none"> We receive your feedback on draft Cabinet paper and discussion document (7 May) You continue to consult with your colleagues on the final draft discussion document (to 9 May) We provide you final Cabinet paper and materials (with your colleagues comments incorporated) (11 May)
14 May – 18 May	<ul style="list-style-type: none"> We receive your feedback on final Cabinet paper and discussion document (14 May) Final edits made CABINET PAPER LODGED – 17 May
21 May – 25 May	<ul style="list-style-type: none"> CABINET COMMITTEE – 22 May
CONSULTATION OPENS – 31 MAY	

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04538
<u>Security Level</u>	In confidence	Number of Attachments #	Titles of attachments 1. Draft Cabinet paper 2. Draft discussion document
Date Submitted:	4 May 2018	Response needed by:	7 May 2018
MfE Priority:	Urgent	Action Sought:	Provide your office with feedback for officials

Draft Zero Carbon Bill Cabinet paper and Consultation Document

Key Messages

- We seek your feedback on the following documents:
 - revised draft discussion document for the Zero Carbon Bill (Appendix A); and
 - draft Cabinet paper requesting approval to consult on the proposed contents of the Zero Carbon Bill (Appendix B).
- We have received feedback from other agencies and the Regulatory Impact Assessment Panel (RIAP). Some of this has been incorporated into this version of the discussion document, however there are still a number of outstanding matters (discussed below). Some of these areas are highlighted in the attached.
- We will continue to work with Latitude over the weekend to complete a thorough edit of document. We will provide you an updated draft in the officials' meeting on Monday, 7 May.

Discussion document

Early feedback from the Iwi Leaders Group

- s 9(2)(f)(iv)

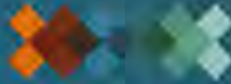
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- With your agreement, we propose sending the consultation document to ILG at the same time as your ministerial consultation.

Updates on specific proposals

- The following sections have changed since the version you commented on:
 - 2050 target options, including what options to present given modelled economic impacts to date, noting we are awaiting further information and modelling runs;¹

¹ Economic modelling covers economic impacts of the potential form of the target (all gases or a short lived vs long lived approach), and the economic analysis informing on potentially necessary emissions price rises, sectoral or technological changes necessary to achieve target options and the potential GDP impact



- 2) Government's 2050 Climate Change Transition Strategy
- 3) Climate Change Commission's role in the New Zealand Emissions Trading Scheme; and
- 4) adaptation reporting power.

1) *The 2050 target options*

8. We have drafted the discussion document to reflect the range of 2050 targets that we propose consulting on (these are also included in the slide-pack for the ENV Committee meeting on 8 May). We have worked with agencies on these options and understand that you have discussed them with your colleagues.

9. **s 9(2)(g)(i)**

We have also included the 'PCE option', under which the Commission could play a role in advising the government on the appropriate 2050 target once established under the Zero Carbon Bill.

10. Please note the economic modelling and numbers in the discussion document are still being worked through. We expect that these will become available for the version you will receive on either 11 or 14 May, but note that these may impact agencies' comfort with the options presented.

2) *The Government's 2050 Climate Change Transition Strategy*

11. Please note that a section on the 2050 Climate Change Transition Strategy (Strategy) has been included in the discussion document. In response to Treasury's feedback, this section requests feedback on whether or not the Zero Carbon Bill should legislate for a Strategy.

3) *The Climate Change Commission's role in the Emissions Trading Scheme*

12. As discussed at the last officials meeting, decisions on the settings in the ETS are interrelated, and we recommend that they be made by one institution.

13. We are currently preparing a brief for you to provide our advice on the most appropriate governance arrangement for the ETS, which you will receive on Friday, 11 May. This version of the discussion document seeks the public's view on the most appropriate role of the Commission in respect of the ETS, and does not indicate a preference.

14. For ease of reference, we propose consulting on two possible roles for the Commission in relation to the ETS. These are either:

- a formal advisory role in respect of the ETS settings that would best support reaching our 2050 target; or
- a stronger, decision-making role around the supply of units to the market.

4) *The adaptation reporting power*

15. Treasury questioned the adaptation reporting power that we are proposing in the appended discussion document. This power would allow the Government to require organisations to report on the actions that they are taking to adapt to climate change impacts. Treasury's concerns related to whether this power should be legislated. They also sought further information about the costs that would be associated with this power.

16. We have spoken to Treasury about their concerns and propose that we consult on a range of options, including whether this power should be legislated. We also propose consulting on whether these powers should be voluntary or mandatory, and options around the organisations that the powers should apply to.



Cabinet paper

17. The Cabinet paper will seek approval to consult on the discussion document. It reflects the contents of the discussion document, highlighting the key proposals for the Zero Carbon Bill and the options that exist for each (including any preferences). The paper also provides a high level overview of the approach that will be taken to consultation.
18. As consultation on the content of the discussion paper is ongoing and a number of policy decisions are still being finalised, a number of sections will change in the lead up to lodgement on Thursday, 17 May. In addition to the outstanding issues outlined above, these sections include RIAP’s assessment.
19. RIAP will continue to consider the discussion document until the text is settled. Once Ministerial and inter-agency consultation has been completed, the Panel will provide a final assessment of the document. As a result, the corresponding section of the Cabinet paper can only be completed once the Panel has been able to make a final assessment.
20. Please note that the Panel has already seen drafts of the discussion document and we are working to address the concerns they have, which include the need for further information on certain points, including the elimination of what could be perceived as feasible options and impact analysis of any options included in the discussion document. Advice from Treasury also indicates that the discussion document will be exempt from a separate Regulatory Impact Statement on the condition that the consultation document contains the key elements of a Regulatory Impact Assessment (RIA). We endeavour to meet these requirements, and will continue to work closely with RIAP and Treasury.
21. At your request, a short narrative will be included as a second appendix to the Cabinet paper. This will include a number of key messages that Ministers can use to communicate the narrative around the Zero Carbon Bill, and address any “Q and As”. This will be included on Friday, 11 May, alongside an updated version of the Cabinet paper.

Next steps

Process for finalising the discussion document and Cabinet paper

22. Feedback from your officials meeting on 7 May will feed into an updated version of the discussion document that you can circulate to your colleagues.
23. We will use the officials meeting on 9 May as an opportunity to incorporate the points raised during the ENV Committee meeting on 8 May that may impact on the discussion document. We will use this opportunity to incorporate further comments, before providing you a revised version on 11 May.
24. The following table outlines the key dates for finalising the discussion document and the Cabinet paper

Table 1: Timeframes for finalising the discussion document and Cabinet paper

Date	Action
4 May	You receive draft Cabinet paper and revised discussion document
4 May	Agencies give high level comments to officials
7 May	You provide feedback to officials
7 May	Revised papers tabled at officials meeting



8 – 11 May	Ministerial consultation with your colleagues on the draft Cabinet paper and discussion document
9 May	Officials receive final agency comments
9 May	You meet with officials, providing your own feedback and any feedback from Ministerial colleagues; officials will share feedback from agencies
11 May	You will receive updated documents, which have incorporated feedback from you, other government agencies and other Minister
14 May	You will provide feedback to officials at officials meeting (if officials have not been able to get Minister revised documents on 11 May they will be tabled at this meeting – fall back option)
16 May	You will receive the final Cabinet paper and discussion document ready for lodgment
17 May	Cabinet paper and discussion document lodged

Recommendations

25. We recommend that you:

- a. **Note** that you will receive a revised version of the discussion document and Cabinet paper at your meeting with officials on 7 May

Yes/No

- b. **Meet** with officials on 7 May for further discussion

Yes/No

Signature

Janine Smith
Manager
Climate Change Policy

4/5/18

Hon James Shaw
Minister for Climate Change

Date



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Ministry for the
Environment
Manatū Mō Te Taiao

Consultation on the Zero Carbon Bill

[tagline – tbd]

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Disclaimer

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Acknowledgements

Insert acknowledgements here if required.

This document may be cited as: Ministry for the Environment. *year*. *Title of publication*. Wellington: Ministry for the Environment.

Published in *month year* by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: *ISBN print version (print)*
ISBN online version (online)

Publication number: ME *xxxx*

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This document is available on the Ministry for the Environment website: www.mfe.govt.nz.



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the most liveable place in the world*

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

Finding your way around the document

- Part 1 – Introduction
 - Outlines ...
- Part 2 – Proposals for the Zero Carbon Bill
 - Sets out the proposals for the Bill, including...
- Part 3 – What happens next?
 - Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [\[insert link\]](#).
- Submissions must be lodged by [\[xx date\]](#).
- Submissions can be:
 - completed online at [\[insert link\]](#)
 - emailed to [\[insert address\]](#)
 - posted to [\[insert address\]](#)
- Submissions should include the following details:
 - The title of the consultation Zero Carbon Bill
 - Your name or organisation name
 - Your email address, postal address and phone number.

Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission, including commercially sensitive information, and in particular which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this document under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

For more information

- Visit the Online Engagement Portal at [\[insert link\]](#)
- Ask the Zero Carbon Bill team at [\[insert email address\]](#)
- Attend one of the events and hui being held around the country and online.

Minister's Foreword

[Some suggested draft content that could be incorporated]

Climate change is challenging us to make fundamental changes to our economy that will impact all New Zealanders, but it also provides us an opportunity to innovate and be a global leader. As a country we need a clear and enduring framework for those changes to ensure we bring everyone along with us, managing the pace change, supporting those affected and sharing the benefits.

Our plan needs to be a clear, stable plan that sets measurable targets in law, ties actions to those targets and grounds them in objective expert advice – providing all parties with certainty will also provide flexibility to take account of policy and technology changes.

Last December, the New Zealand Government announced it would introduce a Zero Carbon Bill, based on the recommendations of the previous and current Parliamentary Commissioners for the Environment, the Productivity Commission, and approaches in other jurisdictions.

The Bill proposes to set an emissions reductions target for 2050 in law, provide an emissions budgeting system to guide progress towards the target, and plan for a changing climate. The Bill also establishes an independent Climate Change Commission to provide expert advice, and require Government to respond with a coherent strategy and clear action plans to keep us on track to our long term goals.

The Bill will be guided by the three fundamental pillars of Government's overarching objectives for climate change action: to take leadership at home and internationally; to build a productive, sustainable and climate-resilient economy and creating a just and inclusive society by managing the pace of transition and supporting those affected.

The good news is, we're not starting from scratch.

We are one of the 196 countries to ratify the Paris Agreement, which seeks to ...

New Zealand has made good progress toward achieving our emissions reductions commitments under the Paris Agreement through a range of policy initiatives, partnerships and investments.

The Emissions Trading Scheme, a key tool for reducing emissions, incentivises businesses to invest in technologies and practices that reduce emissions by putting a price on emissions.

XX numbers of businesses have gone carbon zero and many more have pledged significant reduction. There are multiple real-world examples innovative action, such as Z Energy's Biofuels Production Plant to produce 200 million litres of biofuel made out of waste animal product called tallow. Downer, Fonterra and Fulton Hogan are foundation partners, signing up to use it.

We are world leaders in global research to reduce agricultural greenhouse gas emissions, investing \$20 million annually a year through the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) working in partnership with the Pastoral Greenhouse Gas Research Consortium (PGgRc).

Our farmers have already made huge advances applying the science through improving efficiency on-farm and reducing emissions and with our science teams making progress towards viable new solutions such as a methane vaccine we can achieve even more.

Climate change is bigger than any one business or person, bigger than politics. We are all in this and have a responsibility to future generations to make changes now that build on the progress we have made to provide a framework for the future.

PART ONE: Introduction

» He mokopuna he tupuna. «

SUMMARY

Our climate is changing, and our economy needs to respond as part of a global transition to a net zero emissions, climate-resilient future. This will require a fundamental economic shift in New Zealand.

As we have seen from transitions in the past, such as the industrial and digital revolutions, economic transitions can create challenges – but also opportunities. Taking early action in the right areas is likely to avoid the need for more abrupt action later.

As New Zealanders, we need to make decisions about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures. What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future. This is a critical conversation to have now, and we invite you to be part of it.

Joining the global transition

The world is transitioning to a net zero emissions, climate resilient future.

Our climate is changing, and the impacts we are already seeing ^{s 9(2)(g)(i)}

Climate change will be felt across our regions¹ in different ways, ^{s 9(2)(g)(i)}

^{s 9(2)(g)(i)}

QUICK FACTS: WHAT IS CLIMATE CHANGE?

Earth's atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small percentage of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze, but increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

This is what has happened over the past 150 years, with the marked and growing increase in human-generated greenhouse gases from activities such as burning fossil fuels for energy, farming for food production, and deforestation². The Earth is now heating up at an unprecedented rate. With the amount of carbon dioxide already in our atmosphere and its ability to trap heat for centuries, we have already faced 1 degree Celsius global temperature rise since 1990. We will continue to face more temperature rises, and if we do not reduce emissions to keep it within 2 degrees, the world could face severe, pervasive and irreversible impacts.

¹ See more on the likely impacts by region at the Ministry for the Environment's website at <http://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region>.

² Trees act as a 'carbon sink'—a natural storage area—for carbon dioxide by absorbing or 'sequestering' it over time through the process of photosynthesis. This means that when areas are deforested, the carbon dioxide stored in those trees is released into the atmosphere.

Effective action on climate change requires an effective and collective global response - New Zealand can't successfully tackle climate change by itself. 196 countries, including New Zealand, have signed up to the Paris Agreement as part of the global response to climate change. Under this, countries decided to aim to keep global temperature rise below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius, so the world reaches global net zero greenhouse gas emissions³ by the second half of the century. To achieve the Paris Agreement, countries are expected to report on how much and when their respective government would reduce emissions. The Paris Agreement also has a further aim of increasing countries' ability to adapt and reduce their vulnerability to the adverse impacts of climate change.

QUICK FACTS: WHAT ELSE ARE WE INTERNATIONALLY TO SHIFT TO A LOW EMISSIONS, CLIMATE RESILIENT FUTURE?

New Zealand pursues a robust, rules-based⁴ global response to climate change through the Paris Agreement so all countries contribute on the same legal footing, and that takes into account individual national circumstances and capacities.

We work with others to take ambitious action to reduce emissions and boost resilience to climate change. We are developing a Trade for All agenda that will align our international climate change and international trade objectives. We support New Zealand businesses and exporters to innovate and to position themselves as low carbon producers, in a global market that can be expected to increasingly value and price low-emissions products and services. We partner with researchers and innovators to find and implement better ways to reduce emissions through the Global Research Alliance and the Climate and Clean Air Coalition. We also build leadership, for example in the pursuit of Fossil Fuel Subsidy Reform.

We also recognise that many Pacific Island countries see climate change as an existential threat. We take action to reduce the social and economic disruption in the Pacific that can also have significant impacts on New Zealand. For example, by providing and mobilising financial and technical assistance to install renewable energy and build economic and physical resilience to climate change through the Aid Programme. [Pacific migration policy TBC].

Making this transition will require transformational shifts across the New Zealand economy.

New Zealand will require transformational shifts to respond to climate change and the changing nature of work. This will involve both structural changes to some sectors, and technological change to shift us to low-emissions technologies. This is not just about the next three years, or the next six, but how we transition into the second half of the century.

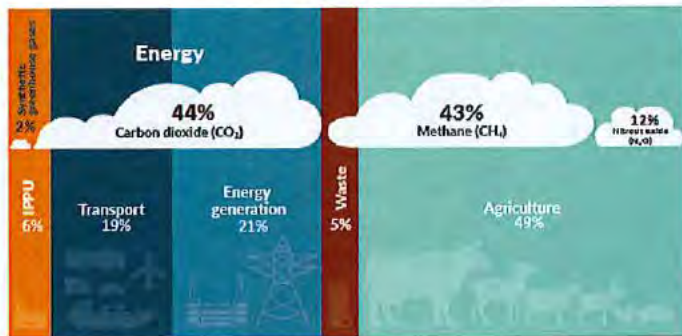
³ Net zero emissions means reducing the volume of emissions caused by human activity until our total output is no greater than the emissions removed through activities like planting forests and reducing deforestation.

⁴ For example, we pursue Paris implementation guidelines that accommodate New Zealand's national circumstances.

WHERE ARE NEW ZEALAND'S EMISSIONS COMING FROM?

Our emissions profile is unusual, relative to much of the rest of the world. We have an economy that is largely based on primary industries, and our agriculture sector is on average four times bigger than our peers in the OECD.⁵ Most of New Zealand's electricity (about 80%) is currently generated from renewable sources, and we also have a sizeable forestry sector (which is reported under our land use, land-use change and forestry sector⁶) which currently offsets our gross emissions. These circumstances mean we face different challenges and opportunities for reducing our emissions.

Figure 1: New Zealand's emissions profile in 2016



Source: New Zealand Greenhouse Gas Inventory 1990-2018, Ministry for the Environment.
Notes: - Percentages may not add up to 100%, as they are rounded to the nearest percent.
- Energy sector consists of transport and energy generation.

What could the transition look like for New Zealand?

There are many pathways our transition could take.

There are many pathways that our transition could take, and many factors could affect the rate and scale of change. These factors include how New Zealand's economy will evolve, how technology will develop, how businesses and consumers will respond to policies introduced, and how other countries will respond to climate change.

We use economic modelling to provide useful insights of how the next 30 years might unfold and how our economy and society under different transition pathways.

SCENARIOS: WHAT KINDS OF CHANGES COULD WE SEE?

While it is not possible to model every single pathway, our initial modelling from Vivid Economics presents three scenarios on the key changes we might see:

1. "Policy driven": Slow technological change means ambitious policy action will be called upon to drive emissions reductions - including incentivising land use change, expanding the forestry sector, incentivising public and active transport and the uptake of EVs.
2. "Disruptive": Rapid technological change disrupts current economic structures by creating new markets and reducing demand in existing ones.
3. "Stabilising": Rapid technological change stabilises existing industry structures and reduce the need for large shifts in economic activity.

⁵ Reference

⁶ LULUCF accounts for 29.1% of total gross emission offsets (from GHG National Inventory, 2018).

⁷ Prod Comm Reference

Regardless of the exact path we take, the transition will likely need a substantial increase in new forest planting, significant emission reductions from our transport and energy systems, and changes in land-use.

Transitioning our economy will bring significant opportunities.

The economic analysis tells us that strong climate action can reap multiple benefits, and support the Government's strategy of ensuring our economy that is productive, sustainable and inclusive.

New Zealand could capitalise on opportunities by focussing on our areas of strength, such as renewable electricity generation, land available for forestry expansion, and our excellence in agriculture research and development. Appendix 1 provides further information on the potential mitigation opportunities in key sectors where we could look to reduce emissions.

Strong climate action can drive faster innovation in some sectors. Businesses in sectors exposed to paying a higher emissions price can expect to respond by innovating in new, high value, low-emissions technologies. International evidence suggests a strong link between stronger climate policies and innovation, and this provides opportunities to also increase our productivity and create new products and markets.

The wider co-benefits of transitioning to a net zero emissions economy could be substantial, including cleaner air, cleaner water, reduced congestion and improved biodiversity. Big gains are likely to be from public and active transport (i.e. walking and cycling), and improving the energy efficiency of homes which has substantial health benefits. For example, every dollar invested in home insulation can provide up to \$4 worth in health benefits.

[WIP] There will also be some challenges that need to be carefully managed.

A higher emissions price will also be necessary as part of this transition and the price will vary depending on the level of structural and technological change to our economy.

s 9(2)(g)(i)

WHAT IS EMISSIONS PRICING AND WHAT DO HIGHER EMISSIONS PRICES MEAN FOR ME?

Emissions pricing reflects the need to put a price on greenhouse gas emissions to create a financial incentive for businesses to reduce emissions, invest in low-emissions technologies and encourage planting of forests.

Currently, [insert more on status quo in NZ and link to NZ ETS]. Our current emissions price of \$21/tonne of CO₂e is lower than some countries but higher than others.

To understand how a higher emissions price could affect a consumer let's consider transport fuel as an example. We know fuel produces 2.3 kilograms of CO₂. This means that every \$100/tonne of CO₂e would add about 23 cents to a litre of petrol.

s 9(2)(g)(i)

s 9(2)(g)(i)

This slowing of GDP growth could reduce household income by as much as \$XXXX in 2050. A higher emissions price relative to overseas competitors could also lead to trade-exposed sectors facing competitiveness challenges which could risk an 'emissions leakage' situation, where sectors choose to shift production offshore instead of reducing emissions at home. This could negatively impact global emissions.

Taking early action in the right areas is likely to avoid the need for more abrupt action later.

Taking early action in the right areas could make a big difference to future impacts and may reduce long term costs. The sooner we act, the more time and options we will have for the transition with less disruption on communities. If we do not plan for change, our transition will be more abrupt.⁸

The speed at which we reduce our emissions will vary sector by sector, because it is affected by factors such as the availability of technologies, and when these prove commercially viable. s 9(2)(f)(iv)

We will need to start investing in lower-emissions technologies sooner rather than later to avoid 'locking in' emissions for the lifetime of assets, especially in the electricity, transport and forestry sectors where we need to focus our emissions reduction efforts. s 9(2)(g)(i)

The Paris Agreement highlights the urgent need for countries to pursue a low-emissions transition. A low-emissions transition entails the decarbonisation of an economy, including a move away from the use of fossil fuels towards cleaner low-emissions technologies for generating energy. In many countries, significant changes in land use patterns are also needed, to, for instance, remove CO₂ from the atmosphere through greater afforestation, and reduced rates of deforestation (UNEP, 2017).

Acting to reduce emissions will also help avoid the economic and social damages of climate change worldwide. The OECD has estimated that if New Zealand and the rest of the world do not take action early, the economic impact of climate change on New Zealand and Australia would be around 1%-2% reduction in GDP by 2060. The pace of this transition matters a great deal. Because most GHGs emitted today will remain in the atmosphere for the rest of the century, delaying action and deferring mitigation to the future comes at the cost of greater long-term warming, even when the future action is substantial (Figure 2.1). It also risks exacerbating the economic and social costs from a low-emissions transition, since future reductions would need to be much more dramatic and abrupt to compensate (OECD, 2017c; RSNZ, 2016; World Bank, 2015).

A SMOOTH, EARLY TRANSITION COULD BE BETTER FOR NZ ECONOMY

Westpac NZ engaged with Ernst Young⁹ to assess the climate change implications of New Zealand acting sooner rather than latter in reaching a new 2050 target.

The findings show taking early climate action could save NZ \$30 billion by 2050. Early climate action also leads to a significantly lower emissions price in the longer term than delaying action.

While delaying climate action could bring higher economic growth in the short-term, an earlier transition enables gradual adjustment and provides greater certainty for businesses to adjust, resulting in better economic outcomes for New Zealand in the longer term.

As New Zealanders, we need to make decisions about how far and how fast we transition, and how we do this in a way that is fair, just and timely.

In shifting to a net zero emissions, climate-resilient economy some businesses and industries will face significant choices over the coming years. This adjustment will be easier for some. s 9(2)(g)(i)

⁸ World Bank, 2015.

⁹ Reference

These choices will affect workers, employers and regions in different ways, and the costs and benefits of the transition will not be evenly shared. In its economic and social agenda, the Government signals a just transition is required. s 9(2)(g)(i)

s 9(2)(g)(i) We will also need to provide lead-in time (particularly in sectors like transport and forestry) so people can make informed investment choices about the future, and ensures we have the right training and investment for new jobs. To ensure we are right in what is 'just' we need to work with communities to build solutions.

CASE STUDY: THE MAORI ECONOMY

The Māori economy is a significant and important contributor to New Zealand's economy. Much of the Māori economy is directly or indirectly involved in natural resource management including forestry and agriculture. The marine environment is also particularly important to the Māori economy (including fishing operations, incomes, and ocean-based investments) as it was the top export commodity of Māori authorities.¹⁰

Incorporating the concept of Kaitiakitanga (stewardship), which infuses the approach to sustainable economic management through generations, offers potential for forming solutions as we set out to make a just transition to a low emissions and climate resilient economy.

An effective transition will require us to think and act long-term.

Taking a planned and adaptive approach now means we can actively manage progress rather than delaying action until it is even harder.

All parts of society, but especially businesses, need a stable direction of travel across successive governments so they trust that putting their money into climate-friendly activities will be a good investment. We can provide this by:

- **Having a clear goal for reaching net zero emissions.** This will enable New Zealanders to understand where we are headed. It will also provide a clear view of the nature and pace of the change we are trying to achieve.
- **Having a clear strategy on how we will transition.** This will ensure that we reduce emissions and build our resilience in a coherent and just way.
- **Establishing long-term political commitment and accountability through our laws and institutions.** This is essential to set up for success in the longer term, and plays an important role in keeping New Zealand on track towards our longer term goals. Done well, this can provide insulation from short-term political pressures, while retaining flexibility for successive governments to make policy choices within a robust, transparent and lasting framework.

Legislation can chart a pathway to the future, by linking actions to targets, grounding actions, and providing a measure of predictability in long term.

What the Zero Carbon Bill can do

The Zero Carbon Bill can set out how New Zealand plans for the transition to a net zero emissions, climate resilient future.

Last December, the New Zealand Government announced it would introduce a Zero Carbon Bill. Based on the recommendations of the previous and current Parliamentary Commissioner for the Environment (PCE),

¹⁰ Statistics New Zealand, 2016

the Productivity Commission, and approaches in other jurisdictions (particularly the United Kingdom), the Zero Carbon Bill proposes to:

- require Government have a coherent **long-term transition strategy** (Chapter xx)
- set a new **emission reductions target** in law (Chapter xx)
- set up an **emissions budgeting system** to guide progress towards the target (Chapter xx)
- **plan for a changing climate** by requiring Government to have a National Adaptation Plan in which prioritised actions are informed by a regularly updated National Climate Change Risk Assessment (Chapter xx)
- establish a **Climate Change Commission** to provide independent expert advice and ensure that we review and monitor progress to our long term goals based on robust evidence (Chapter xx).

The Bill will be guided by the three fundamental pillars of Government's overarching objectives for climate change action:

- **Taking leadership at home and internationally**, recognising the key way for New Zealand to influence the global response is for us to show leadership by taking ambitious climate change action.
- **Building a productive, sustainable and climate-resilient economy**, by decoupling emissions from growth and diversifying our economy.
- **Creating a just and inclusive society**, by managing the pace of the transition, and by supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

More information on the Bill's proposals can be found in later chapters of this document.

Your feedback on these proposals will help inform recommendations to Cabinet and next steps. By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

We invite you to be part of this conversation.

PART TWO: Proposals

A 2050 Climate Change Transition Strategy

SUMMARY

[TBA]

A long-term strategy will help ensure a joined up approach across Government, and a just transition for New Zealanders.

We need to start planning now if we are to reduce our emissions substantially and build our resilience to climate change impacts. Efforts to drive the transition will be required across central and local government, businesses and households. To support this, Government needs to set up the right signals and policies to trigger changes. This could include the range of options within sectors such as forestry planting and supporting the uptake of electric vehicles.

s 9(2)(g)(i)

s 9(2)(g)(i)

s 9(2)(g)(i)

As the types of decisions that impact climate change outcomes are spread across Ministerial portfolios and departments, a long-term strategy could ensure a joined up approach across Government, where policies are set in the context of the wider transformation we are trying to achieve and pull in the same direction. Having a longer term strategy is also consistent with the Paris Agreement, which includes an expectation that we publish a Long Term Low Emissions Development Strategy, as well as the recommendations of the Productivity Commission.¹¹

The Zero Carbon Bill could require the Government to prepare and publish a 2050 Climate Change Transition Strategy.

The Bill could include the requirement for the Government to prepare and publish a 2050 Climate Change Transition Strategy.

A proposed 2050 Climate Change Transition Strategy could include our objectives, the pace of transition and potential pathways, and the overall package of policies to support a smooth and just transition. This Strategy could provide valuable signalling to stakeholders about the Government's proposed policy settings, as well as promoting government accountability for meeting emissions budgets.

¹¹ Reference ProdComm report

More operational plans would support it – such as the policies over the next five years to reduce emissions (see Chapter xx on emissions budgets), actions to adapt to climate change (see Chapter xx on adaptation), and clear support plans to manage impacts of a transition.

To ensure the transition is just, these plans would need to be developed in consultation with workers, businesses, investors, Māori and regional partners. They would also need to be supported by measures such as training and upskilling to manage impacts borne by any one region, community or workforce.

The Strategy would not need to be reviewed regularly as the plans underneath it would be subject to more regular change. [\[insert link to potential role of the Climate Commission\]](#)

Figure xx: Interaction with other instruments



CONSULTATION QUESTIONS

Do you support the Government putting in place a 2050 Climate Change Transition Strategy?

Do you support this being included in the Zero Carbon Bill as a statutory requirement?

The 2050 Target

SUMMARY

Including a new target in the Zero Carbon Bill could provide a clear and enduring commitment to the transition to lower emissions.

- Summary section to come

We seek your views on the form and level of the target.

Setting long term climate change targets can drive our emissions reductions.

The purpose of setting long term climate change targets is to drive emissions reductions. Setting targets is not new, and New Zealand has made a number of international commitments over time as part of the global response to climate change. We have already delivered on our target under the Kyoto Protocol for the period 2008–2012. We also have a number of current targets to reduce emissions which we are committed to meeting including:

- 5% below 1990 levels by 2020, under the United Nations Framework Convention on Climate Change (UNFCCC). Our forecast for our progress towards this target can be seen in our Net Position Report¹².
- 30% below 2005 levels by 2030 (or 11% below 1990 levels by 2030), under the Paris Agreement.

The previous Government also set a target in 2011 to reduce emissions to 50% below 1990 levels by 2050. This target was gazetted under the Climate Change Response Act 2002. The Government at the time acknowledging the target would need to be regularly reviewed to take into account the latest science, development of new technologies, and progress by other countries.

The Zero Carbon Bill could set a new target for 2050 in law.

As set out in the Paris Agreement, the world needs to reach net zero emissions by the second half of the century. s 9(2)(f)(iv)

s 9(2)(f)(iv)

s 9(2)(f)(iv)

New Zealand's previous targets have all been set using a combination of legislative instruments and adopting targets by ratification or written submission, rather than through primary legislation. Setting a new 2050 target in primary legislation (as part of the Zero Carbon Bill) could give it greater prominence, and discourage changes of ambition in response to short-term considerations. While a future government would still be able to change or repeal the target, this would have to be done by legislative amendment, subject to parliamentary and public scrutiny.

¹² Reference

HOW DO DOMESTIC AND INTERNATIONAL TARGETS RELATE TO EACH OTHER?

New Zealand has made a number of international commitments over time in response to climate change, most recently through our ratification of the Paris Agreement (in October 2016) and the announcement of our first Nationally Determined Contribution (NDC). Our first NDC covers the period 2021-30, and we will need to announce further NDCs in the future that cover the years beyond 2030. In addition to NDCs, the Paris Agreement invites all countries to communicate long-term low greenhouse gas emission development strategies.

s 9(2)(f)(iv)

s 9(2)(f)(iv)

The target should also reflect the best available climate change science.

New Zealand is unusual for a developed country in that nearly half of our greenhouse gas emissions come from the agricultural sector. This means that we need to pay particular attention to the scientific impact of short-lived gases like methane which dominate the emissions profile of the agricultural sector.

Greenhouse gases can be split into two broad categories:

- Long-lived gases (such as carbon dioxide and nitrous oxide) which can remain in the atmosphere for thousands of years
- Short-lived gases (such as methane) which are more potent than carbon dioxide, but can decay in the atmosphere over a matter of decades

Because short-lived gases decay relatively rapidly in the atmosphere, global temperatures can be stabilised without reducing the flow rate of these gases to zero. In contrast, emissions of long-lived gases like carbon dioxide need to be either reduced entirely to zero, or to be reduced to the point where they can be balanced by an equivalent volume of emission removals (for example from new forest planting).

On the basis of this understanding, we can identify two different scenarios under which the impact of New Zealand could be judged as zero:

- **Zero further warming.** If New Zealand were able to get its net long-lived gas emissions to zero, and to stabilise its flow rate of short-lived gases, then we would not be contributing to any further increase in global temperatures. If all countries set and achieved the same outcome then global temperatures would stabilise. Whether the stabilisation temperature that was reached was below 1.5 or 2°C would depend on both the total global cumulative emissions of long-lived gases that had been emitted to that point as well as the global volume flow rate of short-lived gases.
- **Net zero emissions.** If the net emissions from all greenhouse gas emissions in New Zealand were to be reduced to net zero (i.e. any remaining emissions would be offset by removals from forestry) then we would have no impact on the climate. From the climate's perspective it would be as if New Zealand didn't exist. If all countries achieved this outcome then global temperatures would also stabilise. Because the flow rate of short-lived gases was either zero, or was offset by emissions removals, it is likely that the stabilisation temperature would be lower than in the "zero further warming" scenario.

WHAT DID THE PRODUCTIVITY COMMISSION SAY ABOUT DIFFERENT GAS TYPES?

The Productivity Commission highlighted the importance of recognising both the different types of impact that short- and long-lived gases have on the climate, as well as the overall impact of all greenhouse gases acting together. They suggested that there should be separate domestic targets for the different gases, but that these targets should be nested within a headline target for all gases. In this way the greater urgency to reduce long-lived gas emissions could be effectively managed.¹³

The particular policy challenge that New Zealand faces about managing its prioritisation of emission reductions by gas type is likely to be faced increasingly by other countries as they bring their carbon dioxide emissions down over the coming decades.

How ambitious should the target be?

The form and level of the 2050 target will have different impacts on New Zealand.¹⁴ This section looks at the potential outcomes from choosing the following target options:

- **Status quo.** This is the current gazetted target of a 50% reduction below 1990 levels by 2050.
- **Net Zero Carbon.** This target would commit New Zealand to reducing its net carbon dioxide emissions to zero by 2050
- **Zero further warming.** Under this target New Zealand would need to get its long-lived gases to net zero by 2050, while also stabilising its flow rate of short-lived gases.
- **Net Zero Emissions.** This would see New Zealand reducing its impact on the climate to zero by achieving net zero emissions across all greenhouse gases.

WHAT DOES 'NET' MEAN?

The term 'net emissions' is normally used to describe the emissions from a country when the impact of the land sector is included in the analysis.

When measuring emissions, it is often important to make a distinction between:

- **Gross emissions.** These are greenhouse gases from the parts of the economy that we traditionally think about as emitters – cars, factories and livestock.
- **Net emissions.** This includes gross emissions as well as the impact of forestry and the land sector. Describing this as 'net emissions' makes sense because forests and other parts of the land sector can often remove carbon dioxide from the atmosphere. These could be considered to be negative emissions but the term used to describe them is removals.

When we describe a target option as being 'net zero' we are simply saying that under this target scenario that when all of the forestry and land sector removals are subtracted from the gross emissions in the target sector/gases, that the result is zero.

¹³ Reference

¹⁴ Reference to modelling.

Status quo

Emissions outcomes

Our status quo target would require our net target emissions in 2050 to be at, or below, 50% of the levels that our gross emissions were at in 1990.

Scientific outcomes

Taking this target would mean that the impact that New Zealand has on the climate would be substantially reduced from its current levels. However, if New Zealand achieved this target, s 9(2)(g)(i)

s 9(2)(g)(i)

Economic outcomes

Placeholder

Indicators	Outcomes
Land sector	<ul style="list-style-type: none"> [info about forestry] [info about farming]
Transport/energy sector	<ul style="list-style-type: none"> [info about transport]
Economic indicators	<ul style="list-style-type: none"> [info about GDP impact] [info about carbon pricing]

Net Zero Carbon

Emissions outcomes

In order to deliver on this target, New Zealand would need to either:

- reduce its emissions of carbon dioxide to zero in 2050; or
- ensure that whatever carbon dioxide emissions remained in 2050 were offset by at least an equivalent volume of emissions removals from new forest planting

This target would stay silent on New Zealand's ambitions for all the other greenhouse gases. The target for these could be dealt with separately, or at a later date. It is important to note that as our existing 2030 emission reduction target covers all greenhouse gas emissions that a strategy for dealing with the other greenhouse gases would need to be developed. It is likely that all of our future international commitments to emission reductions would need to include all of our greenhouse gases.

Scientific outcomes

Taking this target would mean that the impact that New Zealand has on the climate would be substantially reduced from its current, and historical, levels. However, if New Zealand achieved this target, s 9(2)(g)(i)

s 9(2)(g)(i)

Economic outcomes

Placeholder

Indicators	Outcomes
Land sector	<ul style="list-style-type: none"> [info about forestry] [info about farming]
Transport/energy sector	<ul style="list-style-type: none"> [info about transport]
Economic indicators	<ul style="list-style-type: none"> [info about GDP impact] [info about carbon pricing]

Zero further warming*Emissions outcomes*

In order to deliver on this target, New Zealand would need to both:

- reduce its long-lived gases (principally carbon dioxide and nitrous oxide) to at least net zero in 2050; and
- stabilise the rate at which it emitted short-lived gases (principally methane).

In practical terms, taking this target would mean that whatever emissions remained in 2050 from long-lived gases would need to be balanced by an equal volume of emission removals from new forest planting. While this target does not make explicit reference to the acceptable flow-rate for short-lived gases in 2050, it is likely that a decision about this aspect of the target would be needed at the time that the overall target is set.

Scientific outcomes

Achieving this target in 2050 would mean that New Zealand would no longer be contributing to any additional warming from 2050 onwards. If all countries achieved the same target then from this point on there would be no additional anthropogenic (i.e. human-driven) climate forcing and the climate could begin to stabilise. The temperature at which the globe stabilised would depend on both the total cumulative emissions of long-lived gases before 2050 and also the stabilised flow-rate of short-lived gases in 2050.

It is important to recognise that even though setting and achieving a target to 'do no further harm' would be a constructive and important step to take, this outcome would not mean that the risks from climate change would go away completely. In fact the Earth will continue to change for many years into the future as a result of the greenhouse gases that have already been emitted. This is because of the Earth's slow and gradual adjustment to new global temperatures (known as system inertia), as well as the potential for elevated global temperatures to result in further releases of greenhouse gases (feedback loops).

There would still be more that New Zealand could do to reduce its impact on the climate, as its continued emission of short-lived gases would be helping to sustain global temperatures at their new stabilisation point. Reducing or offsetting these short-lived gases would help to reduce global temperatures below their new stabilisation level.

Economic outcomes

Placeholder

Indicators	Outcomes
Land sector	<ul style="list-style-type: none"> [info about forestry] [info about farming]
Transport/energy sector	<ul style="list-style-type: none"> [info about transport]
Economic indicators	<ul style="list-style-type: none"> [info about GDP impact] [info about carbon pricing]

Zero Emissions

Emissions outcomes

Net Zero Emissions would mean that all of the emissions and removals in New Zealand would sum to zero in 2050. Any remaining gases (of any type) would be offset by a corresponding volume of removals from new forest planting.

Scientific outcomes

Achieving this outcome would mean that New Zealand’s impact on the climate would be zero. If all countries achieved this target then global temperatures would be likely to stabilise. Because the flow of short-term gases would also be either reduced or offset then the stabilisation temperature that was reached would be likely to be lower than in the “zero further warming” target proposal described earlier.

Economic outcomes

Placeholder

Indicators	Outcomes
Land sector	<ul style="list-style-type: none"> [info about forestry] [info about farming]
Transport/energy sector	<ul style="list-style-type: none"> [info about transport]
Economic indicators	<ul style="list-style-type: none"> [info about GDP impact] [info about carbon pricing]

WHAT OTHER OPTIONS HAVE BEEN PROPOSED?

Rather than set a specific 2050 target, the PCE suggests there might be merit in including a more general statement of ambition in the Zero Carbon Bill legislation. For example, the legislation could enact an overarching target to reach net-zero in the second half of the century (which is in line with the commitment that New Zealand has taken under the Paris Agreement) and task the Climate Change Commission to advise, within a defined timeframe, on a specific target or targets consistent with the overarching statement of ambition. The Commission would only advise on the target once it had undertaken an 'urgent and searching enquiry into the treatment of the different gases that make up New Zealand's emissions profile'.¹⁵

International units

The primary commitment of this government is to domestic climate change action to upgrade New Zealand's economy for the future. This government is focused on delivering a plan for New Zealand to do its bit for climate change, which is what New Zealanders want to see.

Might our 2050 target change over time?

There remains significant uncertainty about how the world will respond to climate change over the next thirty years, including how our understanding of the science might evolve. We therefore consider it is important that the legislation provides a mechanism to revisit the target. This mechanism should maintain Government's commitment to the long term goal, while offering a process for transparent and well-signalled review.

The Commission could have a role in advising the Government on the appropriateness of the Targets, as well as whether the conditions to revise the target are met. This is discussed in Chapter xx.

QUESTIONS

TBA – full list of draft question in Submissions form at end of document

¹⁵ PCE report reference

Emissions budgets

SUMMARY

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

- Emission budgets are a generic term used to describe a volume of emissions that can be emitted by a country over a certain period of time.

We propose that the Zero Carbon Bill sets up an emissions budgeting system.

- Emissions budgets could be set 10-15 years in advance, with each budget specifying an allowable volume of emissions for a five-year period. Future budgets could be revised within a threshold to allow for changes in the economy and technology, and some 'banking and borrowing' could be allowed between emission budgets periods (within limits).

We are seeking your views on:

- Key elements of the proposal (including the look-ahead period of 10-15 years, the five-year duration of each budget, annual monitoring and comprehensive review every five years).

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

We need stepping stones to guide our progress towards our 2050 target. These stepping stones would give greater certainty for how we will meet our long-term target, and allow us to monitor progress in reducing emissions. This helps ensure the country is on track, and making consistent progress towards our 2050 target – and to avoid abrupt changes in the transition path.

The stepping stones to meet our 2050 target could take many different forms. Most jurisdictions either set an 'emissions trajectory' with milestones along the way¹⁶, or set 'emissions budgets' in advance for the maximum emissions allowed over a certain time period. These are essentially a fixed amount of emissions that can be emitted over a certain time period. Each emissions budget could be set some years in advance, and vary in size. This general approach has been taken by at least ten countries¹⁷ and at least 12 states/provinces in the United States, Canada and Australia.¹⁸

We consider that a series of emissions budgets is best suited to New Zealand, offering a balance between predictability of emissions reductions in the medium-term and flexibility to allow for changes in technology and the economy. While a trajectory approach of reducing emissions by an equal amount every year gives a high degree of certainty in terms of timeframes, it ignores the difficulty and cost of emission reductions at different points in time, and assumes costs at all points of time as equal. For example, technology advancements and reducing costs could prompt earlier action, while a lack of technological advancements or regional economy issues may require greater emission reductions in the future. If a trajectory approach was

¹⁶ For example, the European Union uses a 'staged trajectory' approach, which takes an almost straight-line approach from 2030 (with 20% emission reductions required in the 2030-2040 and 2040-2050 periods respectively).

¹⁷ This includes: the United Kingdom, Denmark, Finland, France, Ireland, Mexico, Norway, Scotland, Sweden and Switzerland.

¹⁸ This includes: California, Connecticut, Hawaii, Massachusetts, Minnesota and Washington, (USA); Alberta, British Columbia, and Ontario (Canada); Australian Capital Territory, South Australia and Victoria (Australia).

applied in New Zealand this could pose a higher cost to the economy than necessary, particularly given our unique challenges around agricultural emissions.

The Zero Carbon Bill could set up the emissions budgeting system.

The Zero Carbon Bill could set up the emissions budgeting system, including:

- the duration of each emissions budget
- how far in advance emissions budgets should be set
- whether emissions budgets can be revised (and if so, how)
- accountability mechanisms that apply if emissions budgets are not met.

Other design considerations include:

- whether emissions reductions could be banked or carried over from one budget to the next
- the relationship between emission budgets, our international climate change commitments and the New Zealand Emission Trading Scheme (NZ ETS)
- how emission budgets would work with a split target approach (chapter X) as it could have implications on the design of emission budgets and is a factor we must consider.

How long should each budget be, and how many emissions budgets should be set in advance?

The current PCE has recommended emissions budgets to be developed and adopted every six years, together with “the requirement for an interim update and review of policy implementation by the Government three years after each budget is adopted.”¹⁹ This would potentially allow a new government to take stock and ownership of progress and next steps. However, it could also increase administration costs.

As an alternative, we propose that each budget last for a five year period. This would be longer than our current electoral cycle, and balances administrative costs with flexibility to tailor budgets. It can also help to align the timing of emissions budgets with other policy instruments, for example the setting of Nationally Determined Contributions (NDC) under the Paris Agreement (discussed in more detail in a later section of this chapter).

We also propose to set a minimum ‘look-ahead’ timeframe of between 10 and 15 years. This balances certainty to businesses and investors²⁰ while recognising the uncertainty involved in assessing emission reduction costs over a longer timeframe. This time period would also decouple the setting of emissions budgets from political cycles, and the Government of the day will not be able to set or influence the budget for their political term as it is set at least ten years beforehand.

Figure xx below shows how this could work in practice.

¹⁹ March 2018, “A Zero Carbon Act for New Zealand: Revisiting *Stepping stones to Paris and beyond*”, *Parliamentary Commissioner for the Environment*.

²⁰ As a point of reference, it takes roughly five to ten years (sometimes longer) from design and consenting to final construction of major infrastructure. Similarly, the life-time of expensive infrastructure (such as industrial boilers and electricity power stations) will typically be more than 25 years.

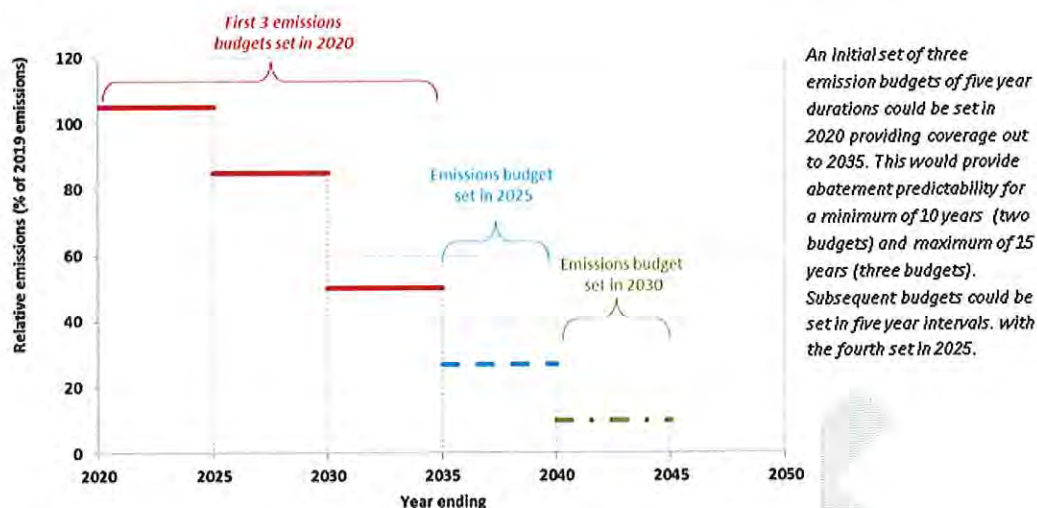


Figure xx - Overview of the emissions budgets process

How should emissions budgets be monitored?

Monitoring of emissions is required to determine whether New Zealand is on track (or not) to meet a particular emission budget. We propose that an annual report be produced to show how New Zealand is tracking towards the emission budget, alongside a five-year review period.

New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations) and could be used for this purpose. Less accurate emissions data may be available on a shorter timeframe. For example, the Energy and Industrial Process and Product Use (IPPU) emissions could be updated annually with data that is less than six months old. Whilst this type of provisional data may not be available for all sectors, it is expected that both monitoring processes are likely to have a role in determining whether New Zealand is on track (or not) to meet a particular emissions budget.

Can emissions budgets be revised?

If we choose to set emissions budgets more than a decade in advance, the less certain the costs of reducing emissions. There may be value in having some flexibility and being able to revise budgets. Allowing emissions budgets to be revised in some circumstances could:

- minimise the risk of overly conservative budgets being set
- allow for a more adaptive approach that can respond to changing circumstances (e.g. unanticipated technological innovation).

To minimise uncertainty for investors, this ability to revise future budgets needs to be constrained by specific conditions. For example, the Bill could set out that any emissions budget period that has begun, or that overlaps with the term of the government of the day, cannot be modified. It could also provide a maximum level of changes that can be made (e.g. no more than a deviation of 15%). The process to review the third (and subsequent) budgets will ensure that the evidence on costs is reassessed periodically and should mitigate the risk of unexpected cost spikes.

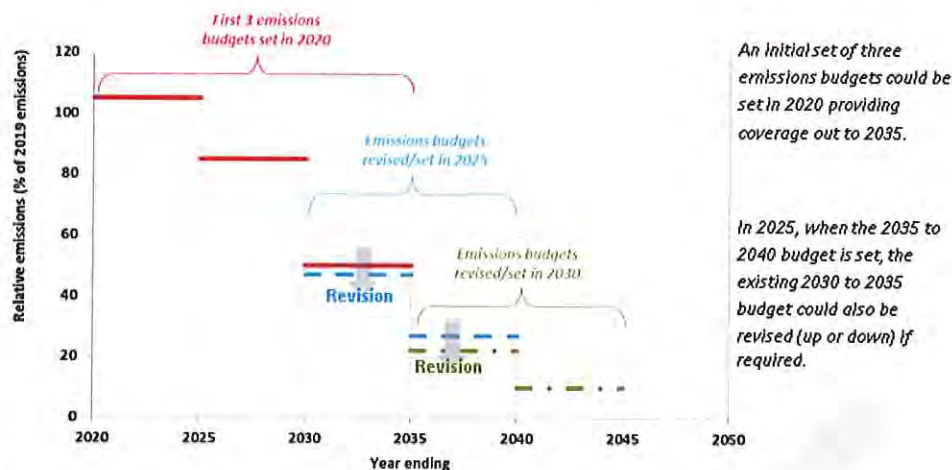


Figure 1 - Overview of the revision of future emission budgets

Can emissions reductions be banked or borrowed from one budget to the next?

It is not necessary to precisely meet emissions budgets. As long as our pathway to reduce emissions is aligned with the path set out by the three budgets, any small discrepancies between emission budgets and actual emissions make minimal difference in the short term.

A strong compliance regime could cause the government of the day to try to exactly meet a budget, even if this comes at a high cost with minimal benefits in reducing emissions at the time, rather than six months later. Therefore we propose to introduce a predetermined 'leniency threshold' – sufficient to prevent perverse outcomes resulting from strict adherence to emission budgets but not so lenient that emission budgets no longer provide predictability or accountability.

Any shortfall in abatement would still be reported on (and effectively borrowed from the next emissions budget), but the accountability mechanisms would not apply unless the budget was missed by more than the leniency threshold. Conversely, if more emissions reductions are achieved than the emissions budget required, then the excess abatement would be carried over to the next emission budget.

How much should the focus be on reducing our emissions within New Zealand?

The current Government has indicated it will place primary reliance on reducing emissions in New Zealand to reach our 2050 target. However, the ability to purchase international units may become an important option over the coming decades to manage very high domestic abatement costs.

As discussed in chapter x, the Commission could provide expert advice and recommendations to government on the upper limit of international units that could be used within a budget period.. This would avoid situations such as allowing a blanket use of international units, or specifying that all budgets must be met entirely through domestic emissions reductions.

The government of the day would also be required to explain its decision if it deviates from the advice and recommendations of the Commission (see chapter x). Also, any international units purchased need to be of a quality to ensure environmental integrity and no double counting between countries (see Chapter xx).

How would emissions budgets align with the New Zealand Emissions Trading Scheme (NZ ETS)?

The emissions budgets and the NZ ETS can easily be designed to be compatible. We are making improvements to the NZ ETS that will give the Government the tools to align the amount of units²¹ in the NZ ETS with our emission budgets.

How would emissions budgets align with our international commitments?

New Zealand’s first Nationally Determined Contribution (NDC) under the Paris Agreement is to reduce our emissions to 30 percent below 2005 levels by 2030. This NDC covers the 2021 – 2030 period and future NDCs will be set in either five or ten year increments, which is compatible with the proposed five year domestic emissions budget periods.

Domestic emissions budgets and international NDCs have different purposes and do not need to be exactly the same. Domestic emission budgets will be directly influenced by the form of our 2050 target and the proposal is to allow some flexibility in revising them up or down. NDCs cannot be revised down as they must demonstrate progression and reflect our highest ambition possible.

That said, we will need to ensure our compliance with the Paris Agreement and New Zealand’s efforts are not called into question. For this reason, the accounting between NDCs and carbon budgets will need to be robust, transparent and compliant with international rules and clearly communicated to our international partners.

QUESTIONS

TBA – full list of draft question in Submissions form at end of document

²¹ A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

Adapting to the impacts of climate change

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change.
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.

We propose that the Zero Carbon Bill include the following adaptation provisions to help decision makers manage their climate change risks in a systematic way:

-

We are seeking your views on:

- the parameters, scope and scale of the National Climate Change Risk Assessment and National Adaptation Plan.
- the respective roles of central government and the Climate Change Commission for each of the adaptation provisions.
- whether the Adaptation Reporting should be statutory or non-statutory and who it should apply to.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

We need to ensure New Zealand is resilient to the impacts of climate change

Climate change pose significant risks to our communities, human health, infrastructure, the natural environment, culture and the economy.

In the last 100 years, New Zealand's average temperature has risen by 1 degree, and seas have risen around 14-22 cm. The mid-range projected sea-level rise over the next 50 years is about 30 cm. The November 2015 report by the Parliamentary Commissioner for the Environment (PCE) *'Preparing New Zealand for Rising Seas: Certainty and Uncertainty'* indicated that the cost of replacing every building situated within 0.5 metres of the spring high tide mark is \$3 billion. Replacing every building within 1.5 metres of the spring high tide mark would cost \$19-20 billion²².

For Māori, sea-level rise poses threats to a mix of interests, assets, and values. Some communities face hard decisions about how long they can remain living in coastal areas prone to erosion, storm surges, and peak tides associated with sea-level rise. Other inland communities are subject to erosion and flooding which is worsened by climate change.

We can also expect to see more damage and disruption to assets and critical infrastructure with more frequent and more intense extreme weather events. Over the last 10 years the costs of weather events to

²² "The RiskScope analysis in NIWA, 2015b shows that the replacement value of buildings within 50 centimetres of the spring high tide mark is \$3 billion and that of buildings within 150 centimetres of the spring high tide mark is \$20 billion." *Preparing New Zealand for Rising Seas: Certainty and Uncertainty: Office of the Parliamentary Commissioner for the Environment, New Zealand. 2015.*

the land transport network have increased from about \$20 million per annum to over \$90 million per annum.²³

In 2016, the previous government established a Climate Change Adaptation Technical Working Group (CCATWG) to provide advice on building New Zealand's resilience to the effects of climate change while sustainably growing our economy. The CCATWG's Stocktake Report²⁴ identified the actions New Zealand is already taking to adapt as well as gaps and barriers which could potentially increase our exposure to climate risks. CCATWG's Recommendations Report²⁵ was publicly released in May 2018, identifying a series of actions for New Zealand to increase our resilience and adapt to the effects of climate change.

There will be a Government response to the CCATWG Recommendations Report, and central and local government will need to work together on this. However, the timing of the release of the Report provides an ideal opportunity for the Zero Carbon Bill to pick up and include some of their key recommendations.

The Zero Carbon Bill can provide tools for decision-makers to manage climate change risks

The Zero Carbon Bill could put into law key foundational aspects for national adaptation action.

Not all adaptation action required to achieve a climate-resilient society is proposed here. However, we consider the following aspects are appropriate for this piece of legislation, and will help enable further adaptation action to occur in the future:

- a regularly updated National Climate Change Risk Assessment
- a regularly updated National Adaptation Plan in which prioritised actions are informed by the risk assessment
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power under which specified organisations report on what they are doing to understand the risks of, and prepare for, climate change impacts.²⁶

The Bill could also set out:

- who is responsible for updating the National Climate Change Risk Assessment and National Adaptation Plan, and when
- which agency will review progress towards implementing the National Adaptation Plan, and when
- who determines which organisations are subject to the Adaptation Reporting Power and when, what is to be reported on, whether this is mandatory or voluntary, and who reviews the reports
- the role of the Climate Change Commission for climate change adaptation and how it may promote and enable long-term thinking and policy direction.

²³ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

²⁴ <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

²⁵ Adapting to climate change in New Zealand: Recommendations from the Climate Change Adaptation Technical Working Group: May 2018

²⁶ These proposals are similar to the adaptation provisions as set out in the UK Climate Change Act 2008.

What is the National Climate Change Risk Assessment and what could it cover?

Climate change exacerbates existing risks and creates new risks.²⁷ Understanding the significance of these risks for New Zealanders, which areas are most at-risk, and how these risks will change over time is essential for a climate resilient New Zealand.

At the moment, there is no nationally consistent understanding of risk, exposure and vulnerability to climate change. There are also gaps in our knowledge about the potential costs to the economy over the medium and long term if no action is taken now to adapt, and potential biosecurity threats to our primary industries and natural systems. Information that we do have is not always readily available in a format that supports decision-making.

To adequately and strategically plan for the effects of climate change, we need to determine risk exposure across people, infrastructure, the natural environment and the economy. This information needs to be accessible and standardised to best support decision-makers - including iwi/Māori, communities, transport and infrastructure sectors, private sector firms, and central and local government.

The proposed National Climate Change Risk Assessment will:

- inform where New Zealand should invest its effort to reduce climate risk
- minimise the cost of future climate-related disaster response and recovery
- initiate an aligned approach across all sectors to help stimulate action in a systematic way
- provide the necessary foundation for investment and decision-making, and would guide future work
- provide the necessary evidence base to more effectively communicate current and future risks and opportunities.

The National Climate Change Risk Assessment would be a publicly available report and updated at five yearly intervals. We propose that the Climate Change Commission have responsibility for the risk assessments. However, until the Commission is established, we propose the Government contract an external party of experts to undertake the first iteration as the first component of the adaptation package. Subsequent assessments would be the responsibility of the Commission and could include information obtained through the use of the adaptation reporting power.

What is the National Adaptation Plan and what could it cover?

Climate change adaptation is not currently integrated into many central government agency objectives. This means legislation and regulatory frameworks and policies around long-term planning are not well aligned, making it difficult for local government, businesses and communities to proactively organise themselves and take action. To date, actions taken to adapt have been mainly reactive.

It is clear the current system is not delivering efficient assistance or fostering certainty for councils and communities. There are considerable gaps in our preparedness, which will create barriers to ensuring New Zealand's resilience unless they are addressed.

We need a planned response to climate change risks. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, we propose a National Adaptation Plan be developed, that will:

- identify priority actions for addressing risk, as identified in the climate change risk assessment, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks

²⁷ IPCC 2014 reference.

- help clarify roles and responsibilities on climate change adaptation across different pieces of legislation, different sectors of society, and determine who needs to act on what and when
- utilise existing policy levers like National Policy Statements under the RMA, as well as recognising existing regional and local plans
- be designed to deal with changing risks and encourage proactive planning in a comprehensive way
- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

We propose the National Adaptation Plan is 'owned' by Government and developed in consultation with a range of key groups and stakeholders. As local government will be at the frontline of many of the challenges arising from climate change, it will be necessary that central and local government work in partnership to develop the National Adaptation Plan. We propose the Plan is updated at five-yearly intervals, to synchronise with the five-yearly risk assessment process.

Ongoing evaluation of how the National Adaptation Plan is being implemented will be necessary to ensure it is enduring and leads to effective adaptation action. We propose the Climate Change Commission (or alternate independent body) review the implementation of the National Adaptation Plan at the mid-point of each five year cycle. The outcomes of each review will be used to update the next iteration of Plan, reprioritising actions and resources as required.

What is the Adaptation Reporting Power?

Currently, we don't have a complete picture of whether adaptation action is being taken by organisations in New Zealand which own public infrastructure, or deliver public services, but which are 'privatised' or in crown entities/state owned enterprises.²⁸ This includes organisations such as electricity distribution network providers and road and rail providers – services New Zealanders rely on. So it is important to understand how these organisations' are adapting to the impacts of climate change as part of their risk management processes.

Central government can obtain information from these organisations in various ways. One way is to request this information through a non-statutory process. Without a binding requirement, this reporting might not be prioritised by the organisation, meaning that the information available about risks and adaptation planning will still be incomplete.

It could also be prescribed as a specific reporting requirement in legislation. While this could potentially add compliance costs on the organisations subject to this reporting requirement, the benefits of a statutory requirement are that good information about risks and adaptation planning for public infrastructure and services would be available.

In addition to the benefits to central government agencies and the New Zealand public, collating this information is beneficial to the organisations themselves, allowing them to be better informed, and more prepared, to mitigate or manage the identified risks. The need to adapt may lead to innovative solutions, and

²⁸ These organisations all have different governance arrangements, some constituted under specific legislation, some will be crown entities, some private companies, some publicly listed companies.

competitive advantage and could help to promote organisational reputation. Experience in the UK found that mandatory reporting delivered a higher standard of reports, as well as complete coverage from the required organisations, providing a better understanding of the adaptation action being taken.

We propose the Zero Carbon Bill includes a targeted 'adaptation reporting power'. This could give the Secretary for the Environment (or an alternative authority such as the Climate Change Commission) the power to direct or invite required organisations, selected from those defined as having public infrastructure or delivering public services, to produce reports detailing:

- the current and predicted impacts of climate change in relation to their functions²⁹
- proposals and policies for adapting to climate change
- an assessment of progress towards implementing the policies and proposals (for organisations that have previously submitted reports).

The reports would reveal how 'ready' organisations are to manage climate risk, and help government design supportive policies for adaptation and ensure that the regulatory environment appropriately encourages adaptation. The reporting would be based on a clear methodology, which could be set out in the Zero Carbon Bill. The methodology would also specify how often the reporting power would be exercised and include any necessary checks and balances on its use. It could also include powers for monitoring and enforcement of the organisations' reports.

We do not anticipate that the Adaptation Reporting Power established under the Zero Carbon Bill would apply to local government (except for CCOs). This is because local government already 'plans' and 'reports' as required under other legislation such as the Local Government Act 2002, the Resource Management Act 1991 and the Land Transport Management Act 2003. It might be necessary to amend reporting requirements under these other Acts to support local government in their data gathering and reporting role.

We recognise that a reporting requirement may place an administrative or compliance cost on organisations. There will also be an administrative burden and cost on the Ministry for Environment (or the Climate Change Commission). To level out the volume of reporting, only a selection of organisations would be invited or required to report in each round. Reporting might be on a yearly or two-yearly basis, organisations might be chosen from a single sector, or a geographical area to create smaller, more frequent rounds. These details would be at the discretion of the Secretary for the Environment (or alternate authority such as the Climate Change Commission) within the parameters of the methodology. The reports would be analysed by the Ministry for the Environment (or the Secretariat of the Climate Change Commission) and used to inform the National Adaptation Plan.

QUESTIONS

TBA – full list of draft question in Submissions form at end of document

²⁹ Examples: for electricity transmission – will higher winds affect lines and towers; how will this impact delivery of services; what risk mitigation can be put in place; what is the organisation's progress towards this mitigation. For municipal water supply services – will flooding affect quality of water delivered; will drought affect quantity of supply; what risk mitigation planning is in place; what is the organisation's progress.

A new independent Climate Change Commission

SUMMARY

The Zero Carbon Bill can establish a new Climate Change Commission (the Commission) to provide independent expert advice, and hold Governments to account towards progress.

- There are a range of roles that the Commission could take, from advisory to decision-making. We propose a core set of advisory functions, and a requirement that the Government provide public responses to the Commission's advice.
- Under this model, the Commission would:
 - provide advice to Government on the level of emissions budgets
 - monitor New Zealand's progress towards emissions budgets
 - monitor New Zealand's progress towards addressing adaptation risks
 - provide advice to Government on issues related to climate change as requested.
- There are also a range of roles that the Commission could play in respect of the NZ Emissions Trading Scheme (NZ ETS), from advisory to decision-making.

We seek your views on:

- the proposed set of core functions for the Commission, and the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- what type of organisation the Commission should be and what expertise Commissioners need.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Decisions on climate change policy will span multiple governments

Currently, decisions on climate change policy, and the transition to a net zero emissions and resilient economy, are made by Government through the support of advice from officials across government departments. New laws, and changes to existing laws, are subject to the Parliamentary process. These checks and balances are an important part of our constitution and multi-party Parliament, while also providing flexibility for the elected government of the day to make decisions.

Addressing a long-term challenge like climate change is inherently difficult with our current institutional set-up, however. Decision-makers often give greater weight to short-term considerations for a range of reasons, such as their priorities relative to other commitments.

Building more stability into these decisions and removing some of the influences of politics on decision-making will help give New Zealanders certainty of how we will meet our climate change goals, including how to meet the emissions reduction target. It will also provide confidence that the pathway is going to remain broadly consistent across different governments and parliaments in the next 30 years to avoid the risk of abrupt changes that could negatively impact New Zealand.

A new independent Commission can help support policy stability across multiple political cycles

In December 2017, the Government announced it would introduce the Commission to address the problem of keeping current and future governments on track to meet its long term climate action, and help support policy stability across multiple political cycles.³⁰

This move mirrors the recommendation of both the former and current Parliamentary Commissioners for the Environment (PCE), and the Productivity Commission. Both of these agencies have also provided advice to the Government on how the UK approach could be applied in New Zealand. A range of stakeholders, including a number of the business community, have indicated their support.

CASE STUDY: THE UK APPROACH IN GENERAL

The United Kingdom, Australia, Denmark, Ireland, Finland, Sweden and the Philippines all have established some form of independent body to support climate change outcomes.

The UK's Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the PCE and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The Commission will need broad support, credibility and independence to be enduring

The Commission will need to become a trusted and stable part of New Zealand's government institutions.

For the Commission to be successful at minimum it needs political consensus to ensure its durability, while also independence to operate at arms-length from Government, with stable and ongoing funding. It also requires a credible expert board of Commissioners, appointed through a robust and transparent process, a capable and proportionate secretariat, and access to good quality data and arrangements in place to support the sharing of data (including with government departments).

A number of these features could be set out in the Zero Carbon Bill:

- the role of the Commission (i.e. powers and level of independence)
- the functions of the Commission
- the matters to take into consideration when performing its functions
- the expertise of the Commissioners
- the type of organisation the Commission is.

Each of these features needs careful consideration to ensure the Commission keeps the government on track to meet our long-term climate goals. These components are discussed in more detail below.

³⁰ The Parliamentary Commissioner for the Environment, March 2018, *A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond*

What role could the Commission have?

The Commission’s role could range from advisory to decision-making. The main factor to consider in this choice is whether to entrust roles to appointed Commissioners versus democratically accountable bodies (ie the Government). Delegating too much power and independence to the Commission could risk it being more susceptible to changes by future parliaments – which could damage its stability. Not giving sufficient weight and attention to the recommendations of the Commission, however, could reduce its effectiveness. Of the countries with similar institutions, the UK strikes a good balance between these factors.

Under the UK Climate Change Committee, the government must publicly respond to and provide rationale from where it deviates from the Committee’s advice. Due to the high credibility and strong public interest, this creates a significant hurdle for Government and makes it politically difficult or unwise to differ from the Committee’s advice (although it stills maintain the flexibility to do so if required – see page xx for more).

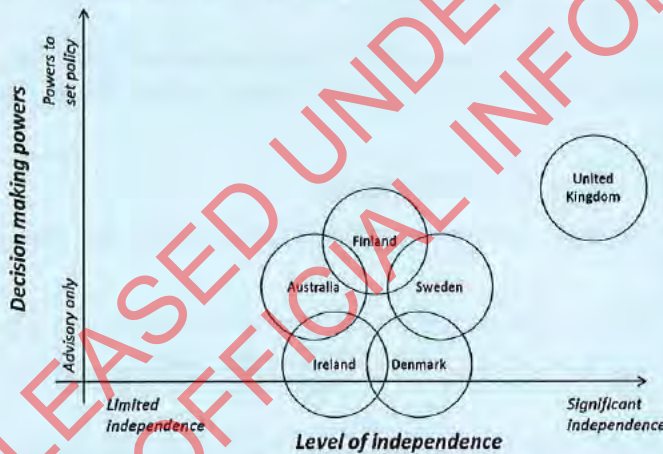
Designing what’s right for New Zealand must consider our context. s 9(2)(g)(i)

s 9(2)(g)(i) The cost of setting up and maintaining a new Commission should also justify the additional accountability it brings. Any new institutions and architecture needs to be enduring enough to address these challenges, underpinned by widespread community and business support.

CASE STUDY: WHAT MODELS HAVE OTHER COUNTRIES ADOPTED?

In an ‘advisory-only’ model, expert advice is provided but the Government is not obliged in a strong way to respond to recommendations (similar to our PCE). In a ‘decision-making’ model, decisions or set policy under its own authority at arms-length from Government (similar to our Commerce Commission). This contributes to its independence.

The diagram below illustrates where similar organisations in other jurisdictions sit in this spectrum.



Most countries choose advisory-only models. Within this model there are options to boost accountability within this model as is the case in the UK. For example, the Government could be required to publicly respond to the independent expert advice when it makes decisions. Note that none of the overseas examples have decision-making powers – and our independent commentators (including our PCE and the Productivity Commission) have recommended against this.

As the Commission’s role may vary depending on what function it has we have discussed these separately below.

What function could the Commission have, and how could Government respond?

The Commission could perform functions in the following key areas:

- the 2050 target (see chapter x)
- emissions budgets (see chapter x)
- adaptation (see chapter x)
- provision of advice on any other issues relating to climate change.

The corresponding role of Government on each of these areas is set out below.

The 2050 strategy [TBA]

The 2050 target

One of the options presented for how we set our new 2050 emissions target includes allowing for the Commission to provide advice on its level before it is set in law. There could also be a role for the Commission in regularly assessing and providing advice on the appropriateness of our target in the light of changes in technology, the economy and society.

Emissions budgets

In respect to emissions budgets, we consider the Commission should, at minimum, advise on:

- the most appropriate level of an emissions budget, taking into consideration:

s 9(2)(f)(iv)

- changes necessary to achieve emissions budgets (ie the 'policy gap')

The Commission could also monitor and assess New Zealand's performance and progress against the emissions budget.

Following the advice of the Commission, the Government would set the emission budget and provide a public response to the Commission's recommendations. Where the adopted budget differs from the advice of the Commission, this response should outline why.

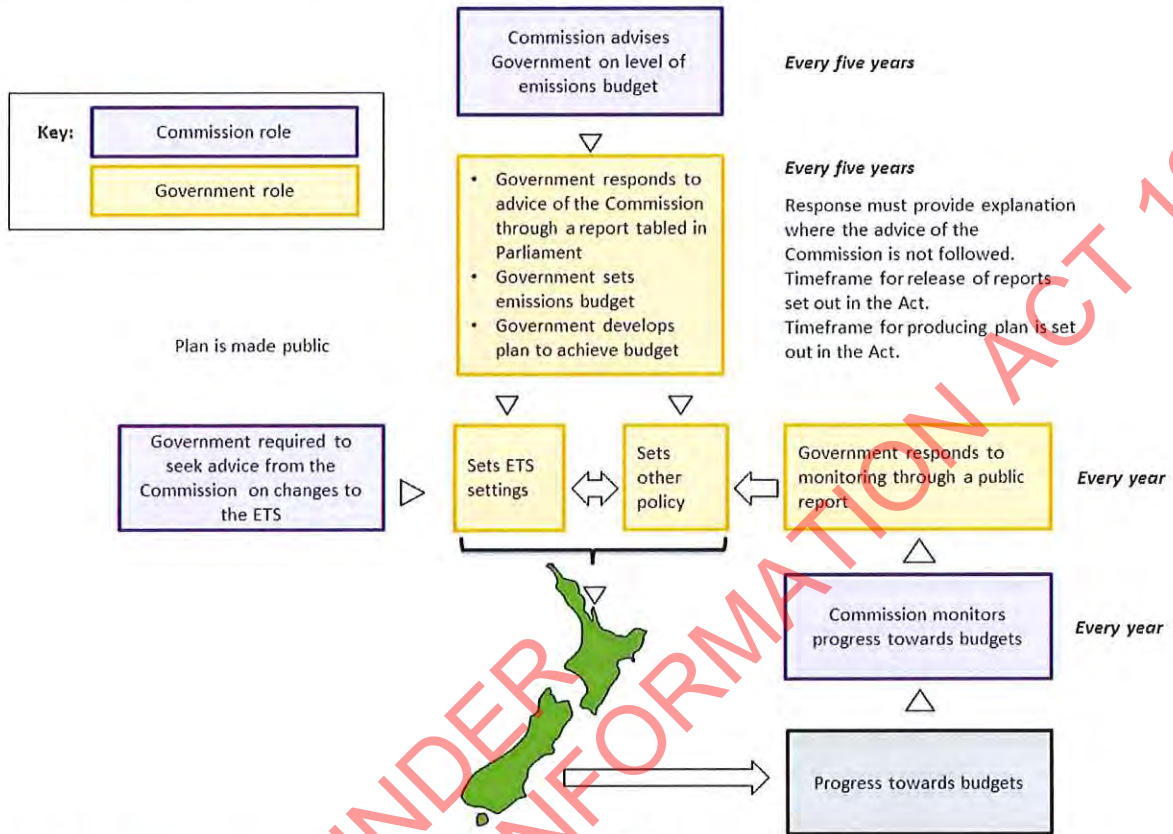
The Government would then be required to publish a plan to meet the emissions budget and set policies to achieve it the emissions budgets. It is proposed the Bill should include a requirement that the Government's plan be published between 6 to 12 months after the budget is released.

Where changes to the NZ ETS are proposed to achieve the budget, Government would seek the advice of the Commission on what should be changed. The Government would then follow normal parliamentary process to amend legislation to change the NZ ETS, if required. Businesses and consumers would then respond to changes to the NZ ETS and other policies.

The Commission would then monitor New Zealand's performance against emissions budgets and provide reports each year outlining the policy gap. Government would be required to publicly respond to the Commission's monitoring report six months after its release.

This approach closely reflects the approach in the UK where decision-makers must take into account the advice of the UK Committee³¹. A key addition to our proposal, aimed at increasing the accountability of the Government, is the statutory timeframe by which the Government must produce the plan for how to meet each budget.

The diagram below sets out how this process could work.

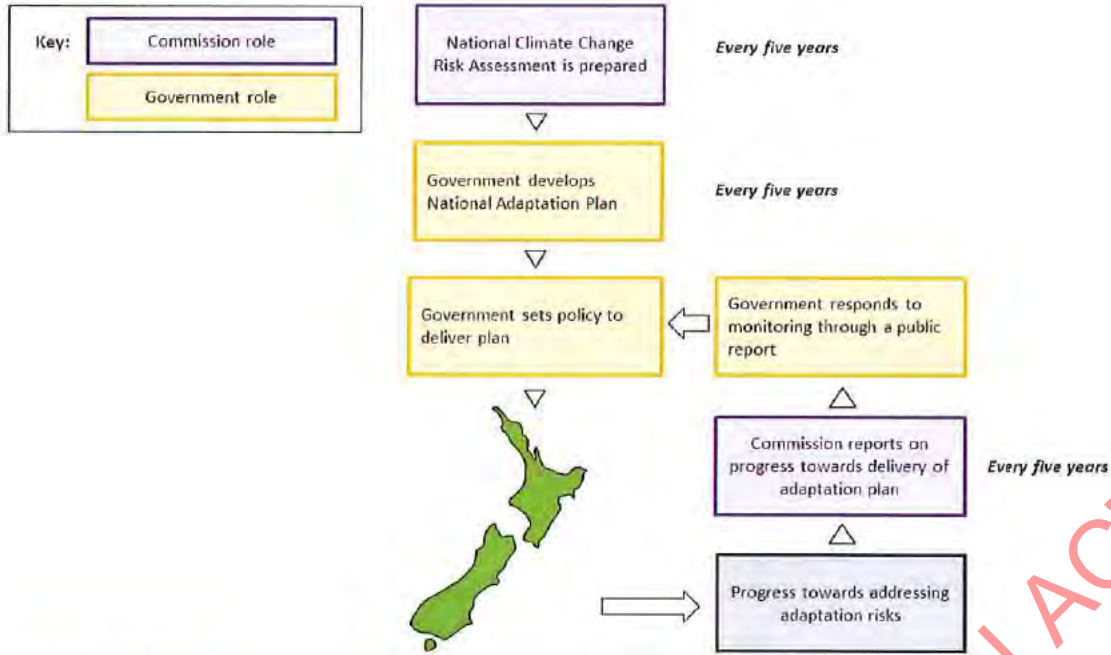


Adaptation

The Commission could also monitor New Zealand’s progress towards addressing the risks posed by climate change. This includes the Commission publishing a report setting out progress towards delivering the National Adaptation Plan (which the Government would need to respond to, similar to the process for emissions budgets).

The diagram below sets out how this process could work in practice.

³¹The Secretary of State is equivalent to our Climate Change Minister



Provision of advice

Issues on key matters in climate change policy

The Commission could provide independent expert advice on issues related to climate change as requested by the Government, such as the development of or changes to 2050 Strategy, the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity. There could also be value in the Commission initiating its own enquiries when time allows.

In May 2018, the interim Climate Change Committee was established to provide evidence and analysis to the eventual

s 9(2)(f)(iv)

s 9(2)(f)(iv)

What matters should the Commission take into account when providing advice?

Setting out in law the matters that the Commission is required to consider in undertaking its work will help ensure its work is transparent and consistent, and supports the just and effective transition.

For example, in the UK Committee takes this approach under their Climate Change Act 2008. Some of the factors the UK Committee must consider are relevant for New Zealand such as science, technology, economic, fiscal and social circumstances³². Regional differences in New Zealand, the expectations of us

³² For the full list see [www.legislation...]. Note Some circumstances in the UK Act are less relevant to the NZ context for example European policy)

under the Paris Agreement, our obligations under the Treaty of Waitangi, as well as the new 2050 emissions reduction target are also important factors. There could also be value in the Commission considering broader environmental circumstances, including the impact of any decisions on areas such as water quality.

These factors and circumstances will inform the Commission's judgements on the extent and pace of the changes required across the economy, including any trade-offs between early and delayed action.

The Commission could also have a stronger role in respect of the NZ ETS

[PLACEHOLDER SECTION –SUBJECT TO CHANGE]

The ETS is a strong economy wide tool that can be used to support the Government to reduce emissions and meet its climate change targets. s 9(2)(g)(i)

s 9(2)(g)(i) Businesses and other stakeholders have provided strong feedback during the recent NZ ETS review that the NZ ETS needs to be more stable and predictable to support investment in forestry and low emissions technology. The emissions budgets (as discussed in Chapter xx) will be the main driver of the level of emissions in New Zealand. Within each budget, we will need to decide how much abatement is achieved by sectors in the NZ ETS, and how much is driven by other policy.

Currently, the Ministry for the Environment leads advice to the Government on any policy changes that may be required to the NZ ETS, while the Environmental Protection Authority is the agency that manages the day-to-day operation of the NZ ETS. The ETS has been subject to a range of changes since its introduction and there is a clear need to provide greater policy stability and predictability if the ETS is to play an effective role in reducing emissions. As such, there is a question about the role the Commission should take with respect to the NZ ETS.

There are a range of roles the Commission could take on in respect of the NZ ETS. This ranges from a formal advisory role on what NZ ETS settings will best support the achievement our targets, through to a decision-making role about the supply of units to the market. In considering the most appropriate role of the Commission in respect of the NZ ETS, we need to consider impacts on the:

- stability and predictability in the New Zealand carbon market and climate policy
- flexibility for NZ ETS policy settings to be adjusted in response to exceptional circumstances
- ability to manage fiscal implications for the Crown

In addition, the NZ ETS is one policy measure among a range of measures that existing or future Governments may use to reduce emissions. It will be important to consider how the NZ ETS interacts with other policies and measures the Government puts in place to reduce emissions, as these will impact the role the NZ ETS has in meeting our targets.

s 9(2)(g)(i)

³³ (reference to the evaluation of the ETS in 2016??).

s 9(2)(g)(i)

The final decisions on the Commission's role on the NZ ETS will need to consider how the policy framework as a whole fits together – including the 2050 target, our international commitments, the emissions budgets and the NZ ETS.

What expertise should the Commission have?

The credibility of the Commission depends in large part on its membership: Commissioners would need to have a high level of standing in society, and be seen as experts in their fields as opposed to stakeholders representing a particular interest group. Commissioners will also need strong interpersonal and communication skills, and be open to having their own views challenged.

The expertise on the Commission will need to reflect New Zealand's circumstances, including our emissions profile, economic and social circumstances, responsibilities under the Treaty of Waitangi, the roles of local and central Government, and our developing response to adapting to climate change.

We consider essential expertise needed on the Commission is:

- Climate change policy (including emissions trading)
- Resource economics and impacts (including social impacts, labour markets and distribution)
- Te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- Climate and environmental science
- Experience with addressing adaptation challenges such as planning, insurance and local government
- Risk management
- Engineering/infrastructure
- Sector specific knowledge on transport, energy production and supply, forestry, and agriculture

Desirable, but non-essential, expertise could include:

- Technology development and diffusion
- International competitiveness
- Business competitiveness
- Financial investment
- Behavioural economics
- Community engagement

Including the expertise needed in the Commission in primary legislation aligns with the UK approach³⁴ and the recommendation of our PCE³⁵ – whom had particular recommendations on relevant areas “such as economic forecasting and climate science, including the Treaty of Waitangi and te reo me ona tikanga Māori”.

³⁴ This approach also aligns with the UK's Climate Change Act 2008 set out in: <https://www.legislation.gov.uk/ukpga/2008/27/schedule/1>

³⁵ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

How could the Commission be set up?

The organisational form of the Commission will depend on its functions and powers. However, the requirement for independence, combined with the need to interact with Government to share information and resources with public sector agencies, means the most appropriate form of the Commission is likely to be an Autonomous Crown Entity (ACE), an Independent Crown Entity (ICE), or a unique entity exhibiting characteristics of both.

ACEs and ICEs are the two most independent forms of Crown entities. An ACE must have regard to Government policy that relates to the entity's functions and objectives if directed by Minister. This can be appropriate where the entity has decision-making powers that require a check and balance to be in place. An ICE is generally independent of Government policy, with no power for the Minister to direct, unless specifically provided for in an Act.

The appointment process will partly depend on the type of organisational form chosen for the Commission, as each has a different level of independence from Ministers. Typical appointment processes range from less independent, with the responsible Minister making the appointments, through to more independent, with the Governor General making the appointments. At either end of the spectrum there is also flexibility to add extra transparency into the process, for example through the process taken to identify candidates. A transparent and robust appointment process will be an important contributor to the credibility of the Commission, so the intention is for the appointment process to be at the more independent end of the spectrum.

QUESTIONS

TBA – full list of draft question in Submissions form at end of document

PART FOUR: Next steps

Your feedback will help shape the Zero Carbon Bill

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill.

By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

WHAT OTHER ACTION CAN YOU TAKE NOW?

Individual action

Positive change from businesses

- agriculture innovations [Prod Comm report]
- industrial scale heat pumps replacing fossil fuel use: Hellel's and Verkerk's Ashburton meats or hospitals [EECA example]
- Some SBC companies setting voluntary carbon targets [EECA examples]

Government enabling climate action

A new initiative, the Green Investment Fund, will provide public funding (and encourage private funding) to invest in projects and businesses that will reduce climate pollution and increase New Zealand's resilience to the changing climate.

Appendices

Table x: Mitigation opportunities in key sectors where emissions reductions are possible

ENERGY	<p>The energy sector is experiencing rapid technological innovation and will play a huge role in the transition. For example:</p> <ul style="list-style-type: none"> • Electric Vehicles are already economic over the lifetime of the car in some roles and we can expect EV uptake will substantially reduce emissions. • Hydrogen fuel cell vehicles might also play a role, and/or advanced biofuels and similar technologies, particularly for moving freight. • Industrial process heat (e.g. milk and meat processing) holds potential to improve energy efficiency and switch to much lower emission fuels such as woody biomass or electricity. • Wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We still have extensive high-quality untapped renewable energy resources. • Energy efficiency improvements from the use of residential LED lighting and industrial scale plant modifications can reduce emissions directly or help lower costs of using cleaner energy sources.
AGRICULTURE	<p>A methane vaccine is under development to mitigate on-farm emissions in the dairy, sheep and beef sectors. Research and development may give rise to material on-farm abatement opportunities in the future.</p> <p>Land use change to lower-emitting uses will likely be needed to achieve material emission reductions from agriculture.</p>
FORESTRY	<p>Increasing our forested land area will play a huge role in soaking up more emissions, both commercial plantation forests and permanent native forests.</p> <p>Forestry helps buy us time until other technological developments or options become available, but we'll need continued emissions reductions post 2050 - beyond planting ever more trees - to maintain a low-emissions economy.</p>
INDUSTRIAL PROCESSES	<p>Efficiency gains in industrial processes (i.e. steel, cement, fertiliser etc.) will help as there are currently a limited number of available technology options.</p> <p>Industrial product-use sectors have viable alternatives, and improved management practices, that can markedly reduce the impacts of other high greenhouse gas potential products (e.g. improving refrigerant use and disposal).</p>
WASTE	<p>Waste can be a valuable resource, for example, Palmerston North's waste treatment plant anaerobic digestion of organic waste creates 'renewable methane' used to generate electricity.³⁶</p>

³⁶ <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

Draft questions [TBA]

2050 Transition Strategy

1. Do you support the Government putting in place a 2050 Climate Change Transition Strategy?
2. Do you support this being included in the Zero Carbon Bill as a statutory requirement?

2050 Target

3. How should the target be set?
 - The Government should set the target by itself, without any input from the Climate Change Commission
 - The Government should set the target, but only after receiving advice from the Climate Change Commission
 - The Government must implement the target recommendation made to it by the Climate Change Commission
 - The Government should set a statement of ambition in legislation, but the specific target should subsequently be determined by the Climate Change Commission (PCE option)
 - Other (please describe)
4. Who should be able to review the target?
 - Nobody. It should not be possible to review the target
 - The Climate Change Commission
 - The Government
 - Other (please describe)
5. When should the target be reviewed?
 - Never. It should not be possible to review the target
 - At regular time intervals (such as every five years when the emissions budget review process occurs)
 - When specific economic and/or technological changes/events occur (such as when new technologies become available, or big changes to the New Zealand economy occur)
 - Other (please describe)
6. Which 2050 target is the most suitable for New Zealand to take?
 - Status quo
 - Net Zero Carbon
 - Zero further warming
 - Net zero emissions
 - Other (please describe)
7. If we can be assured of the environmental integrity of international units, do you think that New Zealand should consider using international units towards its 2050 target?
 - No. Our 2050 target should only be achieved through domestic action
 - Yes, but we should ensure that the use of these units does not delay action that we need to take at home
 - Yes, the use of international units will help us to achieve a more cost-effective transition
 - Other (please describe)

Emissions budgets

8. Do we need emissions budgets (or similar 'stepping stones') to show the pathway to our 2050 target?
 - Yes. [optional comment box]
 - No. [optional comment box]
 - I'm undecided / I support something else [optional comment box]

9. Is the look-ahead period (15 years maximum, and 10 years minimum) sufficient to make informed investment decisions?
10. Do you agree with the proposal of five-year emission budgets, or do you have suggestions for an alternative duration (if so what)?
11. Is the approach to monitoring budgets annually, with a comprehensive review every five years (in step with budget setting) appropriate?
12. Do you support the proposal for emissions budgets to be revised (to provide a balance between predictability and flexibility)?
13. Do you support the proposal for 'banking and borrowing' between emissions budgets?
14. Do you have any other comments in relation to the need for, or design of, emissions budgets?

Commission

15. The Government has proposed that the Commission has a number of core advisory and monitoring functions. Which ones do you support?
 - Advising the Government on the level of long-term emissions reduction targets, for example subsequent targets to the proposed 2050 target, and the emissions reduction commitments New Zealand makes under the Paris Agreement.
 - Advising on carbon budgets and areas of policy focus needed to achieve carbon budgets.
 - Advising on policy parameters in the NZ Emissions Trading Scheme, for example the supply of units into the scheme and any price limits.
 - Advising Government on issues relating to climate change, for example the treatment of agriculture in climate change policy or the pathway to 100% renewable electricity.
 - Monitoring New Zealand's progress towards carbon budgets and publishing annual reports on this.
 - Monitoring progress towards delivering adaptation strategies and plans.
16. The Government will be required to:
 - seek and consider the advice of the Commission in making decisions (including changes to the NZ ETS)
 - provide a public response to the reports of the Commission, and provide justification if it deviates from the recommendations of the Commission
 - publish a plan to achieve each emissions budget within a certain timeframe following the release of each budget
 - publish a national adaptation plan to address climate risks, informed by the national risk assessment.

Do you agree with these requirements?

- Yes. [optional comment box]
 - No. [optional comment box]
 - I'm undecided / I support something else [optional comment box]
17. The Commission could also have an additional role in deciding the supply of units in the NZ ETS. Do you think the Commission should have this additional decision-making role?
 18. Do you think there are any functions that are missing?
 19. What are the most important considerations that the Commission to take into account or matters it must have regard to when undertaking its work or making decisions under the legislation?
 20. Our proposed appointment process is X. Do you agree with the proposed appointment process?
 21. We propose that Commissioners will need to have expertise in Y. Do you agree with list of skills proposed for Commissioners? What do you think the most important skillsets required are?

Adaptation

22. We propose that the Zero Carbon Bill include a number of functions to help us adapt to climate change: which do you support?

→ Tick all that apply

- A National Climate Change Risk Assessment
- A National Adaptation Plan
- The ability to scrutinise the plan
- A reporting power

23. We propose that the National Climate Change Risk Assessment include x. Which do you support?

24. We propose that Government prepares a National Adaptation Plan. Do you want to be part of this process?

General – Adaptation Provisions

We are seeking views and feedback from iwi/Māori, communities, transport and infrastructure sectors, private sector firms, and central and local government about how you can best contribute to these adaptation provisions.

National Risk Assessment

Do you think the Government or The Climate Change Commission should undertake subsequent National Climate Change Risk Assessments?

Reviewing implementation of the National Adaptation Plan

Do you agree with a regular review of the implementation of the National Adaptation Plan?

Who do you think should carry out that review? The Climate Change Commission or other entity?

Adaptation Reporting Power

We would like to hear your view on which organisations should be included under this provision. How should we define what is public infrastructure or public services?

Should local government be required to report, or only council controlled organisations?

If your organisation is likely to be required to report, can you estimate the costs you think would be imposed on you?

Do you think there is a better way of achieving the same outcome? Would it be better to integrate this into existing reporting requirements?

Do you agree with the proposal to give the Secretary for the Environment a power to invite or direct organisations to report?

What information should be reported on?

How should the information be used, and should it be made public?

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From: [Sarah Deblock](#)
To: [Roger Lincoln](#); [Janine Smith](#); [William Tait](#); [Lewis Stevens](#); [Zoe Mack](#)
Cc: [Ministerials](#)
Subject: ZCB Minister's Foreword and Exec Summary - request for Word version
Date: Friday, 11 May 2018 8:31:04 AM
Attachments: [image001.jpg](#)
[2018-B-04552 ZCB discussion document Foreword and exec summary.pdf](#)
Importance: High

Good morning

s 9(2)(g)(i) wants to use the weekend to play around with the Foreword and Exec Summary.

s 9(2)(g)(i)

[Redacted]

[Redacted]

[Redacted]

[Redacted]

No comments on the BN – see attached the signed version

Sarah



Sarah Deblock | Private Secretary, Climate Change
Office of Hon James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance
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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04552
Security Level	In Confidence	Number of Attachments #	Titles of attachments 1. Zero Carbon Bill discussion document: Draft Foreword and Executive Summary
Date Submitted:	9 May 2018	Response needed by:	10 May 2018
MfE Priority:	Urgent	Action Sought:	Decision

Zero Carbon Bill discussion document: Draft Foreword and Executive Summary for your feedback

- This briefing note provides you with the draft Foreword and Executive Summary sections of the Zero Carbon Bill (ZCB) discussion document for your feedback on 10 May 2018.
- We also propose a process and timeframe for the overall discussion document, including consultation with Climate Change Ministers, prior to seeking Cabinet approval on 28 May 2018.

The Foreword and Executive Summary sections reflect the overall discussion document.

- The draft Foreword and Executive Summary sections reflect the key messages and overarching narrative of the discussion document, which are summarised as follows:
 - New Zealand's role in the global challenge: we are small, but our emissions still matter.
 - Why now: the sooner we start the transition, the less disruptive it will be.
 - What the transition looks like: economic modelling tells us significant change is required across the economy – particularly in agriculture and transport – but this is achievable.
 - The transition has wider co-benefits: air, water, urban and biodiversity indicators can be improved and New Zealand can become more productive and profitable.
 - Driving a smooth transition: key elements include a strong Government signal, stable and credible policy settings, enduring laws and institutions, innovation and investment.
 - The Zero Carbon Bill: is one part of an overall response, it sets the laws and institutions that will enable business and society to act.
- We seek your feedback on 10 May to ensure that the key messages and overarching narrative can be accurately reflected throughout the overall discussion document.

Key actions and next steps to deliver a final discussion document to Cabinet include further consultation with ENV and DEV Ministers

- Table 1, over the page, provides key actions and timeframes in the process to deliver the final discussion document to Cabinet on 28 May 2018.
- This includes a proposal to discuss the economic modelling results with Climate Change Ministers on 16 May, as well as the public consultation material at the Environment, Energy and Climate Committee (ENV) on 22 May and the Economic Development Committee (DEV) on 23 May.

Table 1. Key actions and timeframes for delivery of ZCB discussion document

Key actions	Timeframes
You provide feedback on draft Foreword and Executive Summary	Thursday 10 May
We provide you with a draft Cabinet paper to accompany the discussion document	Friday 11 May
You provide feedback on the Cabinet paper at the meeting with officials	Monday 14 May
We provide you with a complete draft discussion document	Wednesday 16 May
You meet with Climate Change Ministers to discuss economic modelling results and communications messaging (proposed)	Wednesday 16 May
You forward draft discussion document for consultation with Climate Change Ministers	By Friday 18 May
Further discussion with ENV Ministers	5pm, 22 May
Further discussion with DEV Ministers (proposed)	11am, 23 May
We provide you with final discussion document for lodgement	By COP 23 May
You lodge final discussion document	By 10am, 24 May
Cabinet meeting	11am, 28 May

Recommendations

7. We recommend that you:

- a. **Agree** to provide feedback on the draft Foreword and Executive Summary sections of the Zero Carbon Bill discussion document, provided in *Appendix 1*, on 10 May 2018;
- b. **Note:**
 - i. we will provide you with a complete draft discussion document on Wednesday 16 May 2018, for you to circulate to your colleagues on Friday 18 May 2018;
 - ii. the key actions and timeframes in the process to deliver the discussion document to Cabinet on 28 May 2018, as outlined in *Table 1* of this briefing note.

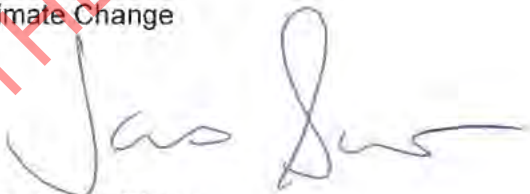
Yes / No

Signature



Janine Smith
Manager
Climate Change

9/5/18



Hon James Shaw
Minister for Climate Change

10/5/18

Date

Ministry for the Environment contacts

Position	Name	Cell phone	1 st contact
Principal author	William Tait	-	
Responsible Manager	Janine Smith	021 144 7617	✓
Director	Roger Lincoln	027 290 7625	

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Appendix 1. Zero Carbon Bill discussion document: Draft Foreword and Executive Summary

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Minister's Foreword

[Some suggested draft content]

Our Climate, Your Say

Our world's climate is changing. The world needs to act to ensure a safe and stable climate to enjoy now and in future generations.

With this challenge comes opportunity. Together we can act and move to a more sustainable economy that ensures future New Zealanders can prosper.

As New Zealanders we have a global responsibility to take action on climate pollution. We are one of 196 countries that decided, through the Paris Agreement, that the world should achieve net zero greenhouse gas emissions by the second half of this century. The world is in this together.

The Zero Carbon Bill sets us up to smoothly transition to a net zero emissions, climate resilient future by 2050, setting a clear target and delivering enduring climate law and institutional arrangements prompting successive governments to continue action within a robust and transparent framework.

Getting the laws and institutions right is a central part of the transition we need to make. It builds our action on climate change by setting our direction that binds us to act over the next thirty years.

We are not starting from scratch. We have an existing commitment to reduce emissions by 50 percent by 2050 and we've taken the first steps towards that. But we can and should go further.

Many businesses in New Zealand have already done so. There are xx that are already carbon neutral, and many others have committed to getting there, including some of our largest.

The certainty created by a long-term emissions target will drive investment in new industries and create new jobs. We have opportunities to increase our renewable electricity generation, plant more trees, and invest in new technologies, and continue our world-leading research into reducing emissions on our farms, and support the growing Māori economy. These could drive investment in new industries and create new jobs.

We also know there will be challenges. Some of our existing industries and sectors and the workers in these will experience change. A planned transition over time gives us the best chance of minimising the social and economic impacts of change so it is just and fair for people, communities, and regions. The longer we leave our planning, the more abrupt and difficult change will be.

Now is the right time to set a long-term target of zero emissions and establish the institutions and strategy to reach it. At its core, this is what the Zero Carbon Bill does.

I invite you all to be part of the conversation.

I want to have a crack at this myself please - H. over the weekend if necessary.

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Executive Summary

Key points: Under the Paris Agreement, one hundred and ninety-six countries including New Zealand decided that the world must reach net zero emissions by the second half of the century – or face significant risks.

We are already experiencing the social, environmental and economic impacts of a changing climate. Our regions, businesses and communities have already seen costly damage and disruption from more frequent and severe extreme weather events – flooding and droughts - coastal erosion from rising sea levels and loss of biodiversity from rising temperatures. This is likely to increase in scale over time.

Our role in the global climate challenge

The fact that our share of total global total emissions is very small (0.17 per cent) does not justify inaction. Small emitters like us make up around 30 per cent of global emissions.

New Zealand has opportunities to drive more renewable electricity, decarbonise the transport sector, and continue world leading research and development to reduce agricultural emissions. Sharing our experience and innovation with other countries can help contribute to global efforts.

Small nations like New Zealand do matter in the global, concerted effort required to address climate change.

Why should we start now

The sooner we start reducing emissions, the less disruptive the transition will be.

Modelling shows that while there will be a cost to reducing emissions, our economy can still continue to grow incomes and wellbeing. The longer we wait to make changes, the harder it will be and the more it will cost through lost opportunities such as first-mover advantage from selling innovative, new low-emissions services and products overseas.

What does the transition look like?

Moving to a low-emissions economy requires a deep and broad transition which brings changes to sectors and industries – some may decline but new sectors could arise. Our economic modelling shows it is achievable. A planned transition over time gives us the best chance of minimising the social and economic impacts of change so it is just and fair for people, communities, and regions.

§ 9(2)(g)(i)

Māori communities in major urban centres and on the coast and floodplains of major rivers will be significantly impacted by climate change. Much of the Māori economy is involved in natural resource management including forestry, agriculture and the marine environment. But there will be opportunities for the Māori economy through the transition.

We need to work together with Māori, with industry, across agriculture, forestry, energy and transport sectors to get the transition right.

What other benefits could come from transition?

The wider co-benefits of transitioning to a net zero emissions economy could be substantial, including cleaner air, cleaner water, reduced congestion and improved biodiversity. We could also see better health from public and active transport (i.e. walking and cycling) and improving the energy efficiency of homes which saves on heating bills but also can lead to health cost savings from reducing illnesses associated with cold and damp housing. There are also win-win opportunities for those looking to invest their savings in new technologies or key sectors such as forestry.

What drives a smooth transition?

Fundamental to a smooth and effective transition is a stable and credible policy environment. New Zealand already has climate policies in place and further changes to the Emissions Trading Scheme will continue to improve this key tool for our transition. Many businesses in New Zealand are already carbon neutral, and many others have committed to getting there, including some of our largest.

But we need more ambitious policies that endure over time to give business and civil society the certainty needed to plan and make long-term decisions and investments.

As outlined in the Productivity Commission's April 2018 report, the key elements of a smooth transition are:

- a strong signal from the Government to make a long-term (and enduring) commitment to the transition
- creating laws and institutions that support stable policy settings
- getting emissions pricing right
- ensuring other supportive regulations and policies are in place for an inclusive and fair transition
- harnessing the full potential of innovation
- supporting investment in low-emissions technology, infrastructure, and other activities

What the Zero Carbon Bill can do

The Zero Carbon Bill aims to set the Government's long term commitment to the transition to a low-emissions economy and provide transparency about future policy intentions to achieve this. The Bill will build on the progress New Zealand has made, including our international commitments, our Emissions Trading Scheme, and the steps many businesses and sectors have made to reduce emissions. The Bill will:

- set targets in legislation for our emissions and the stepping stones to reach these
- set up the [institutional arrangements] to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a risk management plan for adapting to climate change.

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and hold politicians accountable.

A lot of other work will be needed to support these core arrangements. This will include strengthening the Emissions Trading Scheme as a tool that sets the right price for emissions. We will also need to make sure other regulations and policies support, rather than hinder, the transition. That includes incentivising investment and innovation in low-emissions technologies, ensuring communities can transition in a fair and just way through, for example, education and training in new industries. This Bill allows future governments to decide on the right mix of policies they believe will keep moving us towards the target.

The Pillars of the Zero Carbon Bill

The Zero Carbon Bill has been developed based on recommendations of the previous and current Parliamentary Commissioners for the Environment, the Productivity Commission, and is modelled on approaches taken in other jurisdictions, particularly the United Kingdom.

The Zero Carbon Bill will be guided by the three fundamental pillars of the Government's objectives for climate change action:

- **Sustainable economy:** Building a productive, sustainable and climate-resilient economy, by decoupling emissions from growth and diversifying our economy.
- **Global and local leadership:** Leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the key way for New Zealand to influence the global climate action response.
- **Creating a just and inclusive society:** Managing the pace of the transition, and supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

What the Zero Carbon Bill could do

A Zero Carbon Bill could do many things and your feedback will help determine what it does and how it does them. Outlined below and in more detail in the discussion document is what the Zero Carbon Bill covers.

A 2050 emissions reduction target

The Zero Carbon Bill could set a new emissions reduction target for 2050 in law. This would provide more certainty for business and communities on the change we need to make, and position us well to benefit from emerging low-emissions technology and innovations. There are many ways to set this target. Based on our research and analysis we are proposing three possible options that build on the current 2050 target of reducing all greenhouse gas emissions by 50 percent by 2050.

- **Net Zero Carbon.** This target would commit New Zealand to reducing its net carbon dioxide emissions to zero by 2050.
- **Net Zero Long-lived and Stabilised Short-lived Gases.** Under this target New Zealand would need to get its long-lived gases to net zero by 2050, while also stabilising short-lived gases.
- **Net Zero Emissions.** This would see New Zealand reducing its impact on the climate to zero by achieving net zero emissions across all greenhouse gases.

Each target has different impacts on New Zealand, which are set out in more detail in the discussion document. Economic modelling, although subject to uncertainties, suggests structural and technological changes are required to transition, which include significant increases in new forest planting and emissions reductions in transport and energy as well as changes in how we use our land.

The emissions budgeting system

The Zero Carbon Bill could also set up an emissions budgeting system. These act as 'stepping stones' charting our progress towards our 2050 target.

Some important considerations in setting budgets include:

- the duration of each budget
- how far in advance we set them
- whether they can be revised
- what happens if they are not met

It is important to get the balance right, ensuring budgets provide long-term certainty, do not impose excessive administrative costs and allow new governments to take stock and ownership.

We are proposing that budgets could be set 10-15 years in advance, with each budget specifying an allowable volume of emissions for a five-year period.

Future budgets could be revised within a threshold to allow for changes in the economy and technology, and some 'banking and borrowing' could be allowed between emission budgets periods (within limits).

Adapting to the impacts of climate change

Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change that is already locked in. The Zero Carbon Bill could help decision-makers manage their climate change risks in a systematic way by requiring Government to have:

- a National Adaptation Plan in which prioritised actions are informed by a regularly updated National Climate Change Risk Assessment
- a targeted Adaptation Reporting Power to direct or invite specific organisations that own public infrastructure or deliver public services to provide Government with information on their adaptation actions.

An independent Climate Change Commission

The Zero Carbon Bill could also establish a new Climate Change Commission (the Commission) to provide independent expert advice and hold successive governments to account towards progress. The Commission could have an advisory role, or it could have decision-making powers.

We propose a core set of advisory and monitoring functions for the Commission, with a requirement for Government to respond publicly to the Commission's advice. We also have a choice to make around the specific role the Commission could have with respect to the Emissions Trading Scheme. To ensure that the Commission is credible, respected, and an enduring institution, we seek your views on the institutional design of the Commission.

A 2050 Strategy

The Zero Carbon Bill could require the Government to prepare and publish a 2050 Climate Change Transition Strategy. The strategy will underpin a fair and inclusive long-term transition and support a joined-up response by Government.

Your feedback will help shape the Zero Carbon Bill

We welcome your feedback on the proposals contained in this document, which will help inform further policy development, and shape what will become the Zero Carbon Bill. By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

Next steps

We have a broader work programme already underway to support our transition. This includes work to strengthen the New Zealand Emissions Trading Scheme, and the establishment of the Interim Climate Change Committee to progress key climate change policy.

We have initiated a 'just transition' work programme to ensure a whole of government response to support vulnerable regions, people, communities given potential changes in the economy.

We will continue to partner with a wide range of different groups to help with this. To date we have partnered with Fonterra to develop a 'Low Emissions Roadmap', and support continued work with Dairy New Zealand and Fonterra on the 'Dairy Action for Climate Change' plan.

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From: [Jemima Jamieson](#)
To: [Stuart Dymond \(Parliament\)](#)
Cc: [Anna Broadhurst](#)
Subject: RE: DRAFT Cabinet paper: Public consultation on the Zero Carbon Bill
Date: Friday, 11 May 2018 12:53:02 PM
Attachments: [image002.png](#)

Hi Stuart,

Thank you for your feedback and for providing it so quickly!

Para [18] deliberately reflects the way that the framework has been described in the latest draft of the DD (see the executive summary). However, I did register that the wording differs from the Cabinet paper and will raise the issue with my colleagues here.

Thank you for correcting the reference to the OIA. That's not a great look!

Kind regards,

Jemima

From: Stuart Dymond [mailto:Stuart.Dymond@parliament.govt.nz]
Sent: Friday, 11 May 2018 12:42 p.m.
To: Jemima Jamieson
Cc: Anna Broadhurst
Subject: RE: DRAFT Cabinet paper: Public consultation on the Zero Carbon Bill

[In Confidence]

Hi Jemima,

I'm MFAT's private sec in Minister Shaw's office. Anna has copied me in on the latest version of the ZCB Cab paper.

A couple of minor suggestions:

Para 18: use the same wording, in the same order, as in the Framework Cab paper.

Rec 10, Proactive release: OIA is year 1982, not 1983

Thanks, Stuart



Stuart Dymond | Private Secretary, Climate Change - International
Office of Hon James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance
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From: Jemima Jamieson <Jemima.Jamieson@mfe.govt.nz>
Date: Friday, 11 May 2018, 2:02 AM
To: daniel.lawrey@treasury.govt.nz <daniel.lawrey@treasury.govt.nz>, lindy.fursman@treasury.govt.nz <lindy.fursman@treasury.govt.nz>, linda.cameron@treasury.govt.nz <linda.cameron@treasury.govt.nz>, Natalie Labuschagne <Natalie.Labuschagne@treasury.govt.nz>, sarah.key@treasury.govt.nz

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Cc: Janine Smith <Janine.Smith@mfe.govt.nz>, William Tait <William.Tait@mfe.govt.nz>

Subject: DRAFT Cabinet paper: Public consultation on the Zero Carbon Bill

[In confidence]

Kia ora koutou,

Thank you for all your feedback on the Zero Carbon Bill discussion document and the Cabinet paper that will seek approval to release it for consultation.

For your information, please find the latest iteration of the Cabinet paper attached. We will update you again next week once we receive feedback from Minister Shaw.

Thank you again for your continued help. Have a lovely weekend!

Nga mihi,

Jemima Jamieson – Policy Analyst, Climate Change Policy

Ministry for the Environment – Manatu Mo Te Taiao

Email: jemima.jamieson@mfe.govt.nz Website: www.mfe.govt.nz

23 Kate Sheppard Place, Thorndon, Wellington 6143



Ministry for the
Environment
Manatū Mō Te Taiao



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From: [Sarah Deblock \(Parliament\)](#)
To: [Janine Smith](#)
Cc: [Roger Lincoln](#); [Penny Nelson](#); [Cat Wilson](#); [Paul Alexander](#); [Dylan Muggerridge](#); [Mark Storey](#); [Craig Salmon](#); [Lewis Stevens](#)
Subject: Re: ZCB documents - comments Sarah
Date: Wednesday, 16 May 2018 9:51:44 PM
Attachments: [ZCB cover note Sarah comments.pdf](#)
[ZCB CabPaper Sarah comments.pdf](#)
[ZCB DD Sarah comments.pdf](#)

Hello all

My comments on the discussion document / Cab Paper/ cover note are attached.

The main comments relate to the target section, and some questions in the emissions budget section. The adaptation section read very well. Let me know if you have any questions/if anything's unclear.

I understand that Robin will look at the paper tonight ... I don't know whether the Minister will have a chance to look at it before 8am tomorrow. I will keep you posted if he hasn't as we may want to postpone our 8am meeting

Sarah



Sarah Deblock | Private Secretary, Climate Change
Office of Hon James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance
 Level 7, Bowen House, Parliament Buildings, 80 Lambton Quay | Private Bag 18041 | Wellington 6160 | New Zealand

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From: Janine Smith [mailto:Janine.Smith@mfe.govt.nz]

Sent: Wednesday, 16 May 2018 5:22 PM

To: Sarah Deblock <Sarah.Deblock@parliament.govt.nz>

Cc: Roger Lincoln <roger.lincoln@mfe.govt.nz>; Penny Nelson <penny.nelson@mfe.govt.nz>; Cat Wilson <cat.wilson@mfe.govt.nz>; Paul Alexander <Paul.Alexander@mfe.govt.nz>; Dylan Muggerridge <Dylan.Muggerridge@mfe.govt.nz>; Mark Storey <Mark.Storey@mfe.govt.nz>; Craig Salmon <Craig.Salmon@mfe.govt.nz>; Lewis Stevens <Lewis.Stevens@mfe.govt.nz>

Subject: ZCB documents for Minister to review

Hi Sarah

Please find attached the:

- Cover note
- Updated Cabinet paper
- Updated Discussion document

We will talk the Minister through these tonight, and get his feedback at 8am tomorrow morning.

Thanks

Janine

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04584
<u>Security Level</u>	In confidence	Number of Attachments #	Titles of attachments 1. Draft discussion document 2. Draft Cabinet paper
Date Submitted:	16 May 2018	Response needed by:	16 May 2018
MfE Priority:	Urgent	Action Sought:	Meet with officials to discuss

Draft Zero Carbon Bill Discussion Document and Cabinet paper

Key Messages

1. This briefing attaches the latest drafts of the Zero Carbon Bill discussion document (Appendix 1) and the Cabinet paper for Zero Carbon Bill consultation (Appendix 2).
2. We seek your feedback by 8am on Thursday. We will then get an updated version of the papers before they are lodged at 10am on Friday.

The discussion document has been updated

3. The key changes since you last saw the document include:
 - an updated economic impact summary to reflect the latest modelling results. This will be updated and edited before Friday and into next week as we receive more results.
 - the Government 2050 transition strategy has been reframed so that it is part of the plan Government produces to meet emissions budgets
 - the adaptation reporting power has been reframed to determine whether Government should further explore developing such ^{as} power.

A number of changes have been made to the Cabinet paper too

4. We have updated the Cabinet paper to include your feedback, reflect changes to the discussion document, and incorporate the required quality assurance statement for the regulatory impact assessment.

The process to finalise the papers

5. We propose a revised timeline for Cabinet consideration of the discussion document and the consultation dates. This revision allows additional time to refine the economic narrative, and for you to work with your colleagues to gain their agreement on it before consultation begins.
6. This new timeframe would require Cabinet to delegate the decision to approve final changes to the discussion document to a small group of Ministers. But allows Ministers to agree the economic narrative, and questions and answers before the consultation begins.

7. We recommend this group of Ministers includes:

- Hon Robertson
- Hon Woods
- Hon Parker
- Hon Sage
- Hon O'Connor
- Hon Jones

JAG?
 Mahuta?

Ministers from CC Ministers group?
 Needs to reflect Cab Paper



8. The proposed timeline is set out below.

Milestone	Date
Draft discussion document is lodged for consideration by ENV Committee	Friday 18 May
ENV Committee considers the draft discussion document, and decides whether to refer the draft to the DEV committee for its consideration	Tuesday 22 May
Potential date for DEV Committee to consider draft discussion document <i>Agreed to remain</i>	Wednesday 23 May
Officials incorporate feedback	23 May to 25 May
Draft discussion document is lodged late for consideration by Cabinet	Friday 25 May
Cabinet considers a revised discussion document, and approves release pending final changes approved by delegated Ministers	Monday 28 May
Delegated group of Ministers approves final changes to the discussion document	Before 31 May
Group of Ministers meets between 31 May and 6 June to agree the economic narrative and common questions and answers	Between 31 May and 6 June
Discussion document released, consultation starts	Wednesday 6 June
Two public meetings are held	Before 14 June
Consultation roadshow begins	Thursday 14 June
Consultation ends	18 July

9. We will discuss this process and the revised documents with you tonight.



Recommendations

10. We recommend that you:

- a. **Meet** with officials on 16 May for further discussion

Yes/No

Signature

Janine Smith
Manager
Climate Change Policy

Hon James Shaw
Minister for Climate Change

Date

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Appendix 1: Draft discussion document

Appendix 2: Draft Cabinet paper

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Ministry for the
Environment
Manatu Mo Te Taiao

New

- EW narrative ser
- 2050 transi strategy
- adapta

- Focus on:
- updated mrs
 - target chapter

Our Climate

Your say

DRAFT 16 May 2018

Consultation on the Zero Carbon Bill

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Disclaimer

Insert disclaimer text here if required.

Acknowledgements

Insert acknowledgements here if required.

This document may be cited as: Ministry for the Environment. year. Title of publication. Wellington: Ministry for the Environment.

Published in month year by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: ISBN print version (print)
ISBN online version (online)

Publication number: ME xxxx

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This document is available on the Ministry for the Environment website: www.mfe.govt.nz.



Ministry for the
Environment
Aotearoa Mō Te Taiao

*Making Aotearoa New Zealand
the most liveable place in the world*

Make titles
+ sub-sections clearer

formatting
✓

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

Finding your way around the document

- Part 1 – Introduction
 - Outlines ...
- Part 2 – Proposals for the Zero Carbon Bill
 - Sets out the proposals for the Bill, including...
- Part 3 – What happens next?
 - Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [insert link].
- Submissions must be lodged by [xx date].
- Submissions can be:
 - completed online at [insert link]
 - emailed to [insert address]
 - posted to [insert address]
- Submissions should include the following details:
 - The title of the consultation Zero Carbon Bill
 - Your name or organisation name
 - Your email address, postal address and phone number.

Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission, including commercially sensitive information, and in particular which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this document under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

For more information

- Visit the Online Engagement Portal at [insert link]
- Ask the Zero Carbon Bill team at [insert email address]
- Attend one of the events and hui being held around the country and online.

Minister's Foreword

Over the past summer many New Zealanders have experienced the changing climate in our everyday lives. The seas we swam in were warmer than anyone could remember. We had months of almost uninterrupted spectacular weather.

I say 'almost' uninterrupted because it was interrupted by a severe storm surge in January and two Pacific cyclones in February – Gita and Fehi. Roads were washed into the sea in Coromandel, Auckland's Tamaki Drive was flooded (again), and Golden Bay saw huge landslides and damage to crops.

New Zealand has always had dramatic weather. But the frequency and the severity of storms, coastal and river flooding, droughts and wildfires, is increasing. These will continue to increase as long as we continue to add large volumes of greenhouse gases into our atmosphere.

The costs to us are also increasing. We are seeing lost agricultural production, flood clean-up costs, sea-wall and road reconstruction and so on. Insurance companies and banks are re-thinking their risk profiles and premiums for coastal homes and businesses.

All of this sounds like a lot of bad news – but we are now on the verge of being able to fix it. And in doing so, we can bring an extraordinary opportunity to upgrade our economy, not just to be 'clean and green', but also more productive and better paid.

There is a new industrial revolution taking place. This is happening particularly in energy and transport, but also in every other sector of the economy, including agriculture.

The countries that are leading the way are developing intellectual property, new technology and the products and services of the 'low-carbon economy'. Countries that do not lead are letting the opportunity pass them by.

In New Zealand, investment has been held back by the lack of a clear position on climate change or any signal about the direction we want the economy to go in. Will we stick with our current reliance on traditional (and high pollution) technologies and products? Or will we commit to replacing those technologies with new, clean ones?

The Zero Carbon bill is designed to create certainty. It is intended to provide a long-term and stable policy environment, with a clear emissions target and a guided pathway to get us there.

That certainty will drive investment in new industries and create new jobs to upgrade our economy. We have opportunities to increase our renewable electricity generation, plant more trees, invest in new technologies, continue our world-leading research into reducing emissions on our farms, and support the growing Māori economy.

It is achievable, although very challenging. It will affect every sector of the economy, but the change will be more far-reaching in some than others.

For that reason we are absolutely committed that this transition will be planned, gradual and carefully phased in. We have had other transitions before, which were not well managed and led to displacement and upheaval. For this to work, we need to make sure we bring everyone with us and leave no one behind.

Cast your mind back thirty years, to 1988. The Internet didn't exist, at least not in its current form. But try to imagine running your school or your farm or your bank without the Internet today. It has transformed every aspect of the economy – and our lives. It has been disruptive, and it has also created tremendous opportunity, and whole new industries.

A planned transition over time gives us the best chance of minimising the social and economic impacts of change so it is just and fair for people, communities, and regions. The longer we leave our planning, the more abrupt and difficult change will be. We want to avoid that risk.

We are not starting from scratch. Nearly ten years ago, then Prime Minister John Key made a commitment to halve our emissions by the year 2050, and we've taken the first steps towards that.

But in 2015 we, alongside almost all countries in the world, decided that the world should achieve net-zero greenhouse gas emissions by the second half of this century through the Paris Agreement.

Setting a new long term target will be a clear signal of our commitment to the Paris Agreement. Many of New Zealand's largest businesses have already gone 'carbon neutral', and many others are working on it.

Now is the right time to set a long-term target of net zero emissions and put in place the institutions and the strategy to reach it. At its core, this is what the Zero Carbon Bill does.

With this challenge comes opportunity. Together we can build a more sustainable economy that ensures future New Zealanders can prosper.

I invite you to be part of the conversation.

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Executive Summary

The Government is committed to taking action to respond to climate change. We want to build a more sustainable economy that has lower impacts on the environment, while creating jobs and increasing the wellbeing of New Zealanders.

Under the Paris Agreement almost every country, including New Zealand, decided that the world must reach 'net zero' emissions by the second half of the century. Net zero means we reduce emissions to a level where the total we emit is no greater than what we can remove from the atmosphere. Nations around the world will be making changes in the decades to come. Our challenge is to decide how we deliver our part in this global effort.

We are already experiencing impacts of a changing climate. Our regions, businesses and communities have already seen costly damage and disruption. There are more frequent and severe extreme weather events, like flooding and droughts. Parts of our coastline are eroding from rising sea levels. We are losing biodiversity on land and in our oceans from rising temperatures. These impacts are likely to increase in scale over time.

The Zero Carbon Bill is an opportunity for New Zealand to define how we want to respond to this challenge. It can put a new target in legislation, create the institutions to help us get there, hold us to account, and to plan our response to climate change impacts. We want New Zealanders to help us decide the shape and form of the Bill.

Our role in addressing climate change

Our share of total global emissions is very small (0.17 per cent). This doesn't justify inaction. Small emitters like us together make up around 30 per cent of global emissions.

There are plenty of ways we can take action. We can increase renewable electricity generation, plant more trees, invest in new technologies and shift our cars and trucks to electric, where possible. We can continue our world-leading research exploring how to reduce emissions on farms. Sharing our experience and innovation with other countries can help contribute to global efforts.

Why we should start now

Under the Paris Agreement we have committed to reduce emissions to 11% below 1990 levels by 2030, and to set increasingly more ambitious targets. Our current long-term goal is to reduce emissions to 50% below 1990 levels by 2050. We are proposing to increase this target to bring it further in line with the global ambition set out in the Paris Agreement.

The sooner we start reducing emissions, the less disruptive the transition will be. The OECD signals that there is a cost to not taking action. We are already facing costs to respond to climate change. Each year it costs more to keep our roads and railways and other vital infrastructure running. The longer we wait to change, the harder and more costly it is likely to be.

We can't know for sure how the future will unfold. Modelling out to 2050 shows the economy is expected to grow, but it also shows there will be a cost to reducing emissions. For example, based on mid-range results, if we make ambitious efforts to become a net zero emissions economy, GDP could grow by 1.9 percent every year. This is compared to growing at 2.2 percent every year, assuming we don't take measures to reduce emissions.

What the transition could look like

The choices we make will mean we need to change some of the ways we live our lives over the next three decades. We may need to significantly reduce agricultural emissions, shift away from fossil fuels, change how we use land - and plant a lot more trees to soak up carbon dioxide. Tree planting buys us time until we can reduce emissions in other areas. Some sectors and industries will decline and new sectors will emerge. Businesses with high emissions will face challenges if they don't reduce them. Emission intensive sectors will face challenges, and the make-up of the workforce in some regions could change as a result.

Communities on the coast and floodplains of major rivers will be significantly impacted by climate change. Much of the Māori economy is involved in natural resource management including forestry, agriculture and fisheries. There will be opportunities for the Māori economy through the transition.

A planned transition over time gives us the best chance of minimising the impact on our jobs and livelihoods so it is just and fair for all New Zealanders in our communities and regions. Incorporating Te Ao Māori in our approach, as well as working with industry, across the agriculture, forestry, energy and transport sectors will help make sure we get the transition right.

Other benefits from the transition

There are substantial health and environmental benefits from moving towards a low-emissions economy that is resilient to climate change. The air we breathe will be cleaner. More people catching buses and trains more often could reduce congestion in our cities, and walking and cycling improves our health. Better insulation for energy efficiency reduces heating bills and leads to health cost savings and higher quality of life as houses are warmer, drier and healthier than they are now.

More forestry in the right places could improve the health of our birds, fish and plants. It could also improve water quality in our rivers and lakes and prevent erosion. Stronger climate action can also drive faster innovation in some sectors as people find new, clean solutions to old problems.

What drives a smooth transition?

We already have some climate change policies in place and we have made some progress on meeting our international commitments. But to get to a low-emissions economy we will need to have stable and credible climate policies that include: emissions pricing; laws and institutions; regulations and policies; and the right innovation and investment settings.

The Zero Carbon Bill has been developed based on recommendations of the previous and current Parliamentary Commissioners for the Environment, the Productivity Commission, and is modelled on approaches taken in other jurisdictions, particularly the United Kingdom.

The Zero Carbon Bill aims to set up the laws and institutions we will need. The Bill could:

- set targets in legislation for our emissions and the stepping stones to reach these
- set up the institutional arrangements to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a risk management plan for adapting to climate change.

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and hold politicians accountable. This Bill allows future governments to decide on the right mix of policies they believe will keep moving us towards the target.

The Zero Carbon Bill will be guided by the three fundamental pillars of the Government's objectives for climate change action:

- A sustainable economy
- Global and local leadership
- Creating a just and inclusive society.

What the Zero Carbon Bill could do

This section outlines what the Zero Carbon Bill could cover. Your feedback will help determine the targets we set and how we achieve them. More detail is set out in the full discussion document.

A 2050 emissions reduction target

We seek your views on whether the Zero Carbon Bill should set a new emissions reduction target for 2050 in law. This would set the direction for the transition.

A new target would provide more certainty for business and communities on the change we need to make, and position us well to benefit from emerging low-emissions technology and innovations. Based on our research and analysis we are proposing three possible options that build on the current 2050 target of reducing all greenhouse gas emissions by 50 percent below 1990 levels by 2050.

- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050 (but not other gases like methane or nitrous oxide).
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising the flow rate of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

Each target has different implications for our environment and economy, which are set out in more detail in the discussion document. Economic modelling, although subject to uncertainties, suggests there will be changes to our economy which include significant increases in new forests being planted and emissions reductions in transport and energy, as well as changes in how we use our land. These changes will also impact communities and regions in different ways.

A target could also be set later. The Parliamentary Commissioner for the Environment suggests we could include a more general statement of ambition in the Zero Carbon Bill legislation. For example, the legislation could enact an overarching target to reach 'net zero' in the second half of the century (which is in line with collective global ambition set out in the Paris Agreement) and task the Climate Change Commission (described below) to advise its form and level later.

There is also an option to use some emission reductions from overseas with high environmental integrity to help meet our targets.

The emissions budgeting system

We will need stepping stones through to 2050. If we set a new target, the Zero Carbon Bill would need to set up 'emissions budgets'. These, budgets, covering how many emissions we can emit in a given time period would chart our progress.

Some important considerations in setting budgets include:

- the duration of each budget

- how far in advance we set them
- whether budgets can be revised
- what happens if they are not met.

It is important to get the balance right, ensuring budgets provide long-term certainty, do not impose excessive administrative costs and allow successive governments to take stock and ownership.

We propose that budgets could be set 10-15 years in advance, with each budget setting the volume of emissions we can emit over a five-year period. The Climate Change Commission would recommend what the level of the budget should be.

The Government would need to respond with plans and policies to meet each budget. This would mean working closely with the right people to make informed decisions about the direction New Zealand is taking. We would also ensure alignment with our emissions reduction commitments under the Paris Agreement.

We could build in flexibility. Targets and budgets could be revised to respond to significant changes in the economy and technology as well as account for what the rest of the world is doing.

An independent Climate Change Commission

The Zero Carbon Bill could also establish a new Climate Change Commission (the Commission) to provide independent expert advice and hold successive governments to account for progress. The Commission could have an advisory role, or it could have decision-making powers.

We propose a core set of advisory and monitoring functions for the Commission, with a requirement for Government to respond publicly to the Commission's advice. We also have a choice to make around the specific role the Commission could have with respect to the Emissions Trading Scheme. To ensure that the Commission is credible, respected, and an enduring institution, we seek your views on the institutional design of the Commission.

In the meantime, we need to keep moving. An Interim Climate Change Committee has been set up to work on how we manage agricultural emissions and how we get to 100 percent renewable electricity.

Adapting to the impacts of climate change

Even if we can reduce greenhouse gases globally, we will need to adapt to the impacts of climate change that are already locked in. The Zero Carbon Bill could help decision-makers manage their climate change risks in a systematic way by requiring Government to have a National Adaptation Plan that prioritises actions based on a regular risk assessment. We also want to explore whether a targeted Adaptation Reporting Power might be set up. This could see some organisations share information on their exposure to climate change risks.

Your feedback will help shape the Zero Carbon Bill

We welcome your feedback on the proposals contained in this document, which will help inform further policy development, and shape what will become the Zero Carbon Bill. Later this year the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS and help us implement the Paris Agreement.

PART ONE: Introduction

» He mokopuna he tupuna. «

SUMMARY

Our climate is changing, and our economy needs to respond as part of a global transition to a net zero emissions, climate-resilient future. This will require a fundamental economic shift in New Zealand.

As we have seen from transitions in the past, such as the industrial and digital revolutions, economic transitions can create challenges – but also opportunities. Taking early action in the right areas is likely to avoid the need for more abrupt action later.

As New Zealanders, we need to make decisions about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures. What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future. This is a critical conversation to have now, and we invite you to be part of it.

Background

What is climate change?

The Earth's atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small amount of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze. But increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

Over the past 200 years there has been a big increase in human-generated greenhouse gases from activities like burning fossil fuels, farming, and cutting down forests.¹ The Earth is heating up at an unprecedented rate. The amount of carbon dioxide in the atmosphere has already caused a 1 degree Celsius rise in global temperatures since 1900. The temperature will continue to rise and if we don't curb emissions, adapting to life on earth will be difficult for all living things.

¹ Trees act as a 'carbon sink'—a natural storage area—for carbon dioxide by absorbing or 'sequestering' it over time through the process of photosynthesis. This means that when areas are deforested, the carbon dioxide stored in those trees is released into the atmosphere.

Number pages

The impact of climate change so far

We are already experiencing the impact of a changing climate. In the last 100 years seas have risen 14-22cm. More recently, our regions, businesses and communities have shouldered costly damage and disruption from coastal erosion, more frequent and severe weather (flooding, droughts and wildfires) and damage to infrastructure and assets. This includes damage to sites of significance to Māori. Many Māori communities have ancestral ties with coastal areas and still connect to cultural heritage - marae, wāhi tapu, and mahinga kai rohe.

As a result, the costs we face are continuing to rise. As an example, in the past 10 years the cost of weather events to our transport network have risen from about \$20 million per year to over \$90 million per year.²

The Paris Agreement

New Zealand signed the Paris Agreement two years ago. It sets out the international response to the threat of climate change. It has been a game-changer - the world is now on a trajectory to a low emissions and resilient future.

▶ The Paris Agreement says, the world will:

- keep the increase in global average temperature to well below 2°C above pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5°C, with an aim to reach peaking of global greenhouse gas emissions as soon as possible and to reach net-zero emissions by the second half of the century
- enhance the ability of countries to adapt and reduce vulnerability to the adverse impacts of climate change
- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient economies.

space Our first target under the Paris Agreement is to reduce greenhouse gas emissions to 30 percent below 2005 levels by 2030 (11 percent below 1990 levels). The Paris Agreement sets out developed countries' role in the transition and says they should "continue taking the lead by undertaking economy-wide, absolute emission reduction targets". More detailed rules, including on market mechanisms and how we account for the land sector, are due to be finalised this year.

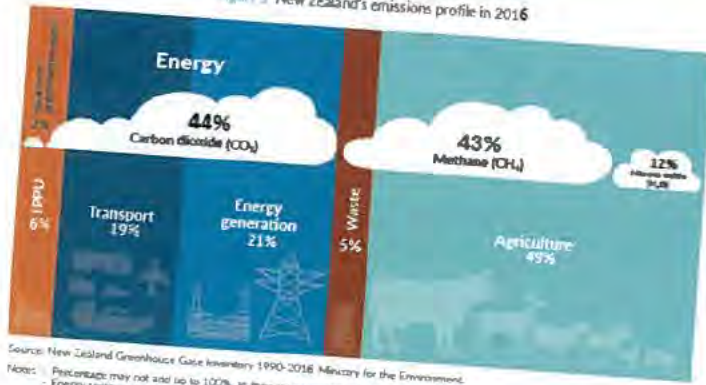
What do our emissions look like?

A large part of our economy is based on primary industries. Agriculture makes up 49 percent of all emissions in New Zealand. Its share of the national total emissions is, on average, four times larger than our OECD peers.

Most of New Zealand's electricity (about 80%) is currently generated from renewable sources which the Government has committed to making 100% renewable by 2035. We also have a sizeable forestry sector which currently offsets about a third of our gross emissions.

² Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

Figure 3 New Zealand's emissions profile in 2016



Source: New Zealand Greenhouse Gas Inventory 1990-2016 Ministry for the Environment.
 Note: Percentages may not add up to 100% as they are rounded to the nearest percent.
 Energy sector consists of transport and energy generation.

For more information on New Zealand's emissions profile, visit our website and look at the [emissions inventory](#).

MP

^{we} **Where are starting from**

We are not starting from scratch. The Bill will build on the progress New Zealand has already made including on our international commitments, our Emissions Trading Scheme and the steps many businesses and sectors have made to reduce emissions.

Our towns and cities are also contributing. Regional and territorial authorities are improving their understanding of how to adapt to climate change and putting in place plans for low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. Many businesses have their own emissions reductions plans in place and innovative approaches to achieving their goals and supporting the transition.

Why New Zealand needs to act

Our actions matter. As a small trade-exposed nation, we will need to move with the rest of the world to remain competitive. Consumer demand for low emissions products and services is already on the rise.

The transition needs to be about a balance between opportunities and costs. Opportunities include:

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eg

- Could drive faster innovation
- Expected to deliver wide benefits elsewhere, like environment and health
- Avoids the damage caused by a changing climate (if the world acts the same way)
- fewer risks from sunk costs in infrastructure and other large-scale assets
- Chance to build on our areas of strength – renewable electricity, land available for forestry, research and development.
- We can benefit from Mātauranga Māori (traditional knowledge) and Te Ao Māori (the Māori world view) through our Treaty partnership.

opportunities could include:
- driving faster innovation
- delivering wide benefits ...

This will require a deep and broad transition. Some of the challenges we will face include:

- Potential to slow GDP growth
- There will be changes to our energy and transport sectors, and probably agriculture
- Some industries will mean some decline while others emerge, with implications for some jobs and regions

bullet point sentences in same style

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- Vulnerable communities could be harder hit if energy, transport and food prices rise
- Could affect competitiveness of our trade exposed businesses
- Risks emissions leakage → Technical term

Modelling can help us think about the implications of different choices we make. When looking as far out as 2050 has limits. What we do know is that under all scenarios the New Zealand economy is still likely to grow each year, but at a slower rate.

The Government is committed to a just and inclusive transition. We will need to work together with workers, businesses, investors, Māori and regional partners to provide support to manage impacts in communities, for example, training and upskilling people into new low emissions jobs.

Change isn't new. Our agriculture sector has responded to constant change over the past 70 years, and as a result, we are considered leading edge globally. The internet and digital economy have also transformed many sectors and how productive we can be. Preparing for the change, and investing in our progress will make the transition less disruptive.

Setting up for the transition

A low-emissions economy needs stable and credible climate policies that include: emissions pricing, laws and institutions; regulations and policies; and the right innovation and investment settings.

Our first step is to put the right laws and institutions in place. The Parliamentary Commissioner for the Environment and the Productivity Commission see this as a pivotal part to moving to a low emissions economy - the Government agrees.

The proposals in the Zero Carbon Bill aim to set the Government's long term commitment and provide transparency about what future policy we intend to use to achieve this. The Bill would:

- set targets in legislation for our emissions and the stepping stones to reach these
- set up the institutional arrangements to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a risk management plan for adapting to climate change.

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and hold politicians accountable.

This work will be guided by the following objectives:

- **Sustainable economy:** Building a productive, sustainable and climate-resilient economy, by decoupling emissions from growth and diversifying our economy.
- **Global and local leadership:** Leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the key way for New Zealand to influence the global climate action response
- **Creating a just and inclusive society:** Managing the pace of the transition, and supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

Other work needed to transition

A lot of other work will be needed to support these core arrangements. Although we haven't made significant progress in bending the curve on our emissions, the work to transition is already underway. Government is working on regulation and policy and moving capital to low emissions investments. Some specific initiatives include:

- strengthening and improving the New Zealand Emissions Trading Scheme
- developing land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees, and
- establishing a Green Investment Fund to stimulate new investment in low-carbon industries. It is
- New Zealand is already a world leader in agricultural emissions reduction research. It is developing practical solutions such as animal breeding and vaccines to reduce methane.

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PART TWO: Proposals

There are a number of options we have to transition to a low emissions economy. This section explores those options in more detail.

2050 Target

A new 2050 emissions reduction target

We propose to introduce a new 2050 climate change target into domestic law. Putting a new target in primary legislation would:

- provide an enduring, long-term signal to businesses and consumers
- provide alignment to the Paris Agreement's global goal of reaching net zero emissions by the second half of the century.
- Help to inform our successive Nationally Determined Contributions (NDCs).
- Signal to the world that New Zealand is playing its part in the global effort, including communicating our long term strategy internationally.

This section provides both a qualitative and a quantitative look at four possible target options - from keeping our current target, through to reaching net zero emissions by 2050. The quantitative analysis (summarised in Table XX) shows the results of economic modelling commissioned from external experts. For more detailed information on the modelling, please visit [\[insert link to modelling summary document\]](#).

In this section we also look at the balance of addressing long-lived and short-lived gases as part of setting the target and whether to consider using some emission reductions from overseas to help meet our emissions targets.

Where we are now

Setting targets is not new. New Zealand has already made commitments to reduce emissions to:

- 5% below 1990 levels by 2020 ^{reduction} [under the United Nations Framework Convention on Climate Change]
- 11% below 1990 levels by 2030 (or 30% below 2005 levels by 2030) [our Nationally Determined Contribution under the Paris Agreement.]
- 50% below 1990 levels by 2050 [in the New Zealand Gazette.]

Regardless of what decision is taken about our 2050 target, the Government is still fully committed to implementing our Paris Agreement commitments, and focussed on delivering our existing Nationally Determined Contribution.

Setting a new target

There are two key considerations ^{when} in exploring setting a new target. The Paris Agreement and the science of short-lived and long-lived gases.

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I'm not sure the points in brackets are necessary (could be clearer to just mention the n.c.)

The Paris Agreement

x The Paris Agreement sets the gauge for international expectations around our long-term emission reduction efforts. The headline emissions reduction objectives of the Paris Agreement are:

- "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels" - Article 2.1 (a)
- "In order to achieve the long-term temperature goal set out in Article 2 [...] to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" - Article 4.1

✓ Any domestic action needs to be consistent with our commitment to the goals of the Paris Agreement. By honouring our commitments, New Zealand is better placed to encourage other countries to keep to theirs, including those countries with much greater emissions than our own.

All of the target options that are set out below (including the status quo) would require substantial reductions in New Zealand's emissions by 2050 and would put New Zealand on a pathway to (balanced) emissions in the second half of this century. However, there is a clear difference between these options on the speed at which we would achieve this outcome. The most stringent target option considered, Net Zero Emissions, would see this balance achieved in 2050, whereas other options would put us on track to meeting this balance point in later years.

The science of different gases

x Nearly half of New Zealand's greenhouse gas emissions comes from agriculture, which means we need to pay particular attention to the scientific impact of short-lived gases like methane, which dominate agriculture's emissions.

Greenhouse gases can be split into two broad categories:

- Long-lived gases (such as carbon dioxide and nitrous oxide) which can remain in the atmosphere for centuries.
- Short-lived gases (such as methane) which are more potent than carbon dioxide, but can decay in the atmosphere over a matter of decades.

Short-lived gases, like methane, decay relatively rapidly in the atmosphere. They last for decades rather than centuries. This means, global temperatures can be stabilised without necessarily reducing the flow rate of these gases to zero. In contrast, emissions of long-lived gases, like carbon dioxide need to either reduce entirely to zero, or at least to the point where they can be balanced out by the removal of an equal volume of emissions, for example from new forests. Any target we set needs to be informed by the best available climate change science. There are two scenarios where New Zealand's domestic emissions impact could be judged as zero: rephrase

- If we took long-lived greenhouse gas emissions to zero and stabilised our flow rate of short-lived gases, then our domestic emissions wouldn't contribute to any further increase in global temperatures. If, hypothetically, this scenario applied worldwide, global temperatures would stabilise. at today's level (ie this is not sufficient, we need a Δ in SLG before they're stabilised)
- If emissions from all greenhouse gas emissions in New Zealand reduced to net zero then our domestic emissions would have no impact on the climate. If this scenario applied worldwide, average global temperatures would ~~be~~ likely to stabilise. Because the flow rate of short-lived

further

achieving net zero

gases ^{would be} either zero, or ~~was~~ offset by emissions removals, it is likely that the temperature we stabilise at would be lower under this second scenario.

Options for a new climate change target for 2050

This section examines four potential outcomes from different 2050 target options. Under any of the options, what our transition looks like will depend on a wide range of factors. This includes how our economy develops, how technology changes, and the policies future governments put in place here and overseas to drive and support the transition.

- **Status quo** - This is the current gazetted target of a 50% reduction below 1990 levels by 2050
- **Net Zero Carbon** - This target would commit New Zealand to reducing its net carbon dioxide emissions to zero by 2050 & not other gases (keep words consistent with previous section)
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases** - Under this target New Zealand would need to get its long-lived gases to net zero by 2050, while also stabilising its flow rate of short-lived gases → still unclear to me why we're not proposing the option to do this & then stabilise SLG
- **Net Zero Emissions** - This would see the impact on the climate from New Zealand's domestic emissions to zero by achieving net zero emissions across all greenhouse gases.

Each of these targets performs differently against the criteria underneath the over-arching pillars of the Zero Carbon Bill.

WHAT DOES 'NET' MEAN?

The term 'net emissions' is normally used to describe the emissions from a country when the impact of land use and forestry is included in the analysis. When measuring emissions, it is often important to make a distinction between:

- **Gross emissions.** These are greenhouse gases from the parts of the economy that we traditionally think about as emitters – cars, factories and livestock.
- **Net emissions.** These include gross emissions as well as the impact of land use and forestry. Describing this as 'net emissions' makes sense because the land use and forestry sector can often remove more carbon dioxide from the atmosphere than it emits and these removals are 'netted off' against the emissions that occur elsewhere in the economy.
- Forests play an important role in offsetting emissions by sequestering carbon as they grow. Increasing our forested land area will play a significant role in meeting our targets. There are different ways to account for forests against our targets. Options include accounting for new forests only, as in our current target accounting, or including all of our forests, as reported in our Greenhouse Gas Inventory.

The table below compares the economic and emission outcomes of these four options.

reph. due to "no further impact on the climate"

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Figure xx economic and emission outcomes of the options for the 2050 target.

		Status quo	Target options		
			Net zero carbon	Net Zero Long-Lived Gases & Stabilised Short-Lived Gases	Net Zero emissions
Emissions outcomes	Greenhouse gas (GHGs) emissions covered	Net GHG emissions in 2050 would need to be at, or below, 50% of our gross emission levels in 1990.	Focus attention on carbon dioxide emissions. Plan for other GHG emissions still required to achieve an 'absolute' (all-sectors, all-gases) international target. Offset provision for carbon dioxide only.	Reduce long-lived gases to net zero by 2050 and stabilise the rate of short-lived gases emission (note, if this option is selected the Government would need to determine acceptable stabilised flow-rate for short-lived gases in 2050) Offset provision for long-lived gases.	All of the emissions and removals in New Zealand would add to zero in 2050. Offset provision for all GHGs.
	Impact of New Zealand's target on global warming	Substantially lower warming impact that now, but still contributes to further global warming in 2050 and beyond. + contribution to warming could be a wide range of remaining emissions would either be LLG or SLG	Greatly reduced warming impact - and would help to avoid the 'stockpile' of long-lived GHGs in the atmosphere but still contributes to warming in 2050 because of remaining other domestic GHG emissions.	New Zealand's domestic emissions would not be contributing to any additional increase in global temperature from 2050 onwards. However, the remaining emissions of short-lived gases would still be helping to sustain the Earth's temperature at elevated levels	Zero impact on the climate from domestic emissions.
Economic outcomes	Part of economy covered in emissions	Does not specify where emission reductions would	Mainly energy sector (ie. power generation, transport)	Economy-wide action to reduce emissions, including	Most stringent target option requires deep and broad

Place alongside like (too much) a footnote

under

s 9(2)(g)(i)

need detail title eg - part of the economy expected to reduce emissions

not related to the table

³ at least 80% of the light vehicle fleet would electric by 2050.

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<p>reductions</p>	<p>need to come from. A broad range of sectors could contribute, including higher rates of EV ownership and an expanded forestry estate.</p> <p><i>spell out</i></p>	<p>and industrial heat⁽⁴⁾</p> <p>Rate of new forest planting increases (note the more that carbon dioxide emissions can be reduced, the lower the amount of new forest needed to replace lost)</p> <p><i>Use the same term throughout table</i></p>	<ul style="list-style-type: none"> • strong action in energy sector (as net zero carbon) • in addition, efforts to reduce nitrous oxide emissions from the agricultural sector • overall stringency on short-lived gas producing sectors uncertain as level of short-lived gases not prescribed 	<p>economy-wide emission reductions including</p> <ul style="list-style-type: none"> • substantial land-use changes in particular large increase in new forest planting rates⁽⁵⁾ which could constrain land available for agricultural production)
<p>How the target affects policy choices in technology</p>	<p>Retains economy-wide flexibility to evolve as new technology emerges and costs change, but more uncertainty for individual sectors.</p> <p><i>for policy choices</i></p> <p><i>why? work explain</i></p>	<p>Some technology available but other areas may be more challenging eg EVs to run off renewable energy exist for cars, whereas aviation emissions might require cost-effective options be developed (eg biofuel)</p> <p><i>needs to be clearer</i></p>	<p>Economic trade-offs between gas types may be challenging to make (ie if challenging to convert coal industrial boilers to biomass, the Government could not accelerate action to reduce methane emissions from landfills to compensate).</p> <p><i>needs to be clearer</i></p>	<p>Current abatement technologies across sectors need to be deployed (eg very high rates of EV ownership or industrial heat); but need to develop and deploy new technologies currently unavailable (such as a methane vaccine for livestock)</p>

⁴ Many industrial heat users to transition to using either biomass or electricity for their energy supply.

⁵ Research by the Productivity Commission and GLOBE New Zealand predict between 2 and 3 million hectares of new forests are needed to achieve this target (ie doubling of the national plantation forest estate, as well as significant new natural forest planting)

CASE STUDY : What targets have been set elsewhere

Our target will be scrutinised in how we compare to others. The boxes below show what other countries are committed to for their greenhouse gas (GHG) emission reductions.

The United Kingdom: The UK is committed to reducing GHGs by at least 80 percent by 2050 compared to 1990 levels. ^{2050/long-term}

The European Union: The EU is committed to reducing GHGs by at least 80 percent by 2050, relative to 1990 levels through domestic reductions alone and 80-95 percent with international emissions reductions. *Also expected to review this target in 2019*

Norway: Norway is committed to reducing GHG emissions to net zero by 2050, relative to 1990 levels. (Note: Norway's net is different to ours). Norway has a conditional aim to meet this target earlier, by 2030 – through EU emissions trading/purchasing international emissions reductions.

Sweden : 2045?

The economic impacts

EDITED VERSION OF THIS SECTION TO COME THURS

✓ We need to build up an understanding of the economic impacts of the different 2050 target options we are choosing between.

Models to explore target options can help us develop an understanding of the economic impacts. The Government has commissioned modelling work from independent experts. This section explains what work has been done and what these modelling results mean for New Zealand businesses, households and the economy more generally.

While modelling provides useful insights, it does not predict the future or eliminate future uncertainties especially over thirty year timeframes. Using a range of models helps to build a richer picture of how the future will play out.

The actual economic impact of different targets is affected by many factors. These include: how technology develops, how consumer preferences change and what policies are put in place to support the transition.

What the modelling indicates

Under any of the 2050 target options, modelling shows our economy will continue to grow just more slowly than it might have done without further climate action. *format*

The stronger the target and the further out into the future that we look, the bigger the difference in terms of the economic impact *is* between the options.

Modelling indicates that the economic costs of domestic climate action won't be evenly distributed. For example, lower income households are likely to be more impacted than wealthier households because a higher proportion of their spending is on emissions-intensive products, like petrol.

Our transition won't have the same effect on different sectors of the economy either. It will disproportionately impact emissions-intensive sectors (e.g. sheep and beef farming and petrochemical processing) compared to less emissions-intensive sectors (for example, retail

services). This uneven spread of impact is the main reason the Government is developing a plan for a just transition.

There is complexity around the choices we have on how to use our land. Modelling shows there are large variations in emissions-intensity between different types of land use. While industries based on livestock (e.g. dairy cows) are emissions-intensive, horticulture is a relatively low emissions industry and forestry acts to remove emissions. But because each of these activities are suited to different types of land, it's not as simple as directly substituting one for another on the same block of land.

One consistent conclusion from our modelling work is that under all of the target options it is likely that a substantial expansion in new forest planting would be needed. Under the strongest target option, Net Zero Emissions, up to 2.8 million hectares could be required by 2050. According to Statistics New Zealand⁶, this area of new forest planting is equivalent to about 10 percent of the total land area of New Zealand.

The policy choices made by the Government will have an important influence on the actual changes that will occur to New Zealand's land use.

These modelling estimates are indicative only, and neither account for wider co-benefits from climate action, nor the benefits to the New Zealand economy of avoiding climate damage if the rest of the world also acted to address climate change.

Table xx shows that the strongest target reported, Net Zero Emissions, requires the highest emissions price and therefore leads to the largest impact on GDP and households. For example, under this target, the economy grows by 1.9 percent each year on average rather than 2.1 percent in reaching the Status Quo target. In dollar terms this slower growth rate is reflected over the transition period as an average GDP of \$373 billion per year for Net Zero Emissions rather than \$381 billion for the Status Quo. We also find that household incomes increase by 19 percent on average compared to 2018 levels when meeting the Net Zero Emissions target, which is a smaller increase than occurs for the Status Quo target. Under the Status Quo target household incomes rise by an average of 22%.

All of this depends on levels of innovation and afforestation. Examples of the type of innovation that we can assume in the energy sector include increasing electric vehicle uptake in cars and small vehicles to 95 percent by 2050.

For further information on the economic modelling including the economic impacts of 2050 target options see [insert link to modelling summary document on website].

1082
Ppl will have to do the type of trees planted & we should address this somewhere

over what period?

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⁶ http://archive.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Land/land-use.aspx

Economic Impact - Annual averages		Status quo and Net Zero Carbon	Net Zero Long-Lived Gases & Stabilised Short-Lived Gases		Net Zero Emissions
- Compared to 'Do nothing' baseline - Compared to Status Quo - Compared to today					
Economy-wide impact	GDP growth rate⁸	2.1%	1.9%	1.9%	
	<i>Absolute change compared to 'Do nothing' baseline</i>	↓0.2%	↓0.3%	↓0.3%	
	<i>Absolute change compared to Status Quo</i>	N/A	↓0.1%	↓0.2%	
	GDP⁹ (\$ billion)	\$381	\$374	\$373	
	<i>Percentage change compared to 'Do nothing' baseline</i>	↓2.3%	↓4.0%	↓4.4%	
	<i>Percentage change compared to Status Quo</i>	N/A	↓1.7%	↓2.1%	
Household impact	Per household GNDI¹⁰ (\$ thousand)	\$228	\$224	\$223	
	<i>Percentage change compared to 'Do nothing' baseline</i>	↓2.3%	↓4.0%	↓4.3%	
	<i>Percentage change compared to Status Quo</i>	N/A	↓1.7%	↓2.1%	
	<i>Percentage change compared to 2018 GNDI</i>	↑21.8%	↑19.7%	↑19.3%	
Strength of climate action	Emissions prices¹¹ (\$/tCO₂-e)	\$109	\$243	\$272	
	<i>Absolute change compared to Status Quo</i>	N/A	↑\$134	↑\$163	

change title / doesn't match with other column

⁷ For the modelling it is assumed that the Status Quo target and the Net Zero Carbon target have the same economic impact. This is based on the assumption that both targets result in broadly similar emissions reduction by 2050 as measured by GWP 100. → should this point be made earlier on?

⁸ GDP growth rate reflects the annual average GDP growth rate over the period 2018 to 2050.

⁹ GDP reflects gross domestic product as an annual average over the period 2018 to 2050. Note GDP in 2018 is approximately \$269 billion.

¹⁰ Per household GNDI reflects the gross national disposable income divided by number of households as an annual average over the period 2018 to 2050. Note per household GNDI in 2018 is \$187 thousand. Note also that GNDI is a measure of the total income of New Zealand residents from domestic production and from net income flows with the world.

¹¹ Emissions prices are annual averages over the period 2018 to 2050. Note emissions prices do not reflect the price of New Zealand Units in the New Zealand emissions trading scheme that industry might face.

Economic Impact in 2030 and 2050		Status quo and Net Zero Carbon		Net Zero Long-Lived Gases & Stabilised Short-Lived Gases		Net Zero Emissions	
		2030	2050	2030	2050	2030	2050
Economy-wide impact	GDP growth rate	2.4%	1.6%	2.4%	1.4%	2.4%	1.3%
	GDP (\$ billion)	\$344	\$506	\$340	\$486	\$339	\$482
Household impact	Per household GNDI (\$ thousand)	\$367	\$496	\$323	\$475	\$322	\$471
Strength of climate action	Emissions prices (\$/tCO ₂ -e)	\$200	\$302	\$323	\$227	\$580	\$652

Using emission reductions from overseas

The current Government is committed to climate change action in New Zealand. However, there is also an option to use emission reductions from overseas to help meet our targets.

It's unclear when new and potentially game-changing technology may come on-stream. Having the option of purchasing emissions reductions from overseas enables us to strive for more, ^{ambition / action on climate change than what would otherwise be the case & not alone} it provides flexibility so we can meet our (ambitious) climate change targets at reasonable cost. The global nature of the climate change challenge means it makes sense for countries to work together. The Paris Agreement recognises this and enables countries to cooperate to meet their climate change commitments.

International carbon markets

New Zealand can decide about the use of international carbon markets to help us deliver our Nationally Determined Contributions under the Paris Agreement and to help meet the domestic climate change target separately.

If international carbon markets are to be used in the future, this type of cooperation would need to satisfy a number of criteria. For example, the government would need to be satisfied that:

1. the credits/units are genuine and have environmental integrity; ^{i.e. the emission reductions are real}
2. we will maintain progress towards our transition to our chosen climate target;
3. it makes economic sense; and
4. we can do it in a way that will maintain a steadily rising domestic carbon price, to maintain incentives in domestic abatement opportunities, such as forestry.

International carbon markets under the Kyoto Protocol were problematic. There was an oversupply of cheap units, as well as issues with the authenticity of some. There was no cap on the amount of international units that could be surrendered by participants in the NZ ETS. This meant the New Zealand market ^{was} 'flooded' ^{with} cheap international units. The Government will not allow a repeat of these problems. Changes to the NZ ETS later this year will safeguard its integrity, ^{in case a decision is made to use international carbon markets in the future.} ^{when the int'l price dropped}

We're involved in a number of international efforts to ensure the environmental integrity of international carbon markets in the future. This includes negotiations through the UNFCCC; leadership to establish the 'Ministerial Declaration on Carbon Markets'; and a range of other initiatives.

How we set the target

Legislative options available for setting a 2050 target

Any 2050 target would need to be set in legislation. There are a number of legislative instruments available. New Zealand's existing Climate Change Response Act, for instance, means targets can be set by gazette notice or regulation. Climate change treaties such as the UNFCCC and the Paris Agreement also define ^{have} processes by which targets under them are set. A Zero Carbon Act with a 2050 target set in legislation, would need to have a framework put around it to support its delivery.

To date, New Zealand has used a combination of legislative instruments and ^{ed} adopting targets by ratification or written submission to the UNFCCC to set domestic and international climate change targets, rather than primary legislation. The advantage of using legislative instruments rather than primary legislation to set targets is that they don't involve a lengthy parliamentary process. However, targets set by legislative

instruments can be amended by the Minister for Climate Change and successive governments without parliamentary scrutiny.

To give New Zealand's new 2050 target more prominence, we propose it is set in primary legislation. Future governments would still be able to change or repeal the target, but this would have to be done by legislative amendment, subject to parliamentary and public scrutiny. Primary legislation will play an important role in:

- signalling Parliament's long-term commitment to reducing emissions and providing clarity to New Zealanders about its policy objectives
- indicating the elevated priority level of the 2050 target (in relation to other government considerations) to incentivise and influence changes in behaviour, decision-making, and substantive policy that reduce emissions on a continuing basis *rephrase*
- discouraging changes of ambition in response to short-term considerations.

The role the Climate Change Commission could have in setting the 2050 target - *More direct title*

Plain English Our proposal is that a target is set in primary legislation through the Zero Carbon Bill. This can only be set by the Government. However, the Government has choices about how specific the target would need to be within the Zero Carbon Bill legislation and what role the Climate Change Commission might take in the target-setting process. The advantage of a less specific target in the Zero Carbon Act itself could both allow more time for a decision about the target to be made, as well as potentially providing more flexibility on future emissions budgets. The Government could decide on the form and level of the target when enacting the legislation, or it could task the Climate Change Commission to advise on this.

A POTENTIAL ROLE FOR THE CLIMATE CHANGE COMMISSION

Rather than set a specific 2050 target, the *PCE* *now or* suggests there might be merit in including a more general statement of ambition in the Zero Carbon Bill legislation. For example, the legislation could enact an overarching target to reach 'net-zero' in the second half of the century (which is in line with collective global ambition set out in the Paris Agreement) and task the Climate Change Commission to advise, within a defined timeframe, on a specific target or targets consistent with the overarching statement of ambition. The Commission would only advise on the target once it had undertaken an 'urgent and searching enquiry into the treatment of the different gases that make up New Zealand's emissions profile'.¹²

A 2050 target could change over time

There is still significant uncertainty about how the world will respond to climate change over the next thirty years, including how our scientific understanding might evolve. Legislation can provide a mechanism to revisit the target. This should maintain Government's commitment to the long term goal, while offering a process for transparent and well-signalled review.

Being able to review the target could mean we can adjust to unforeseen events under some pre-determined conditions. The downside of being able to review the target is that it might provide less certainty about what is expected from different sectors. *2 abt the transⁿ of the economy*

¹² A Zero Carbon Act for New Zealand: Revisiting 'Stepping stones to Paris and beyond'

To balance this, the Climate Change Commission could provide a statement on the 2050 target when it provides advice on the levels of emissions budgets. See more on emissions budgets in Section X. A statement could also include a recommendation as to whether the target level should be revisited. The Government could then initiate a review of the target level. We propose that a first statement should come when the Commission provides advice on the level of the fourth emissions budget (covering the period 2035 to 2040), which is expected to occur in 2025. At this point we will have a better idea of how New Zealand and other countries are progressing on their low emissions transitions.

QUESTIONS

2050 Target

1. Should a 2050 emissions reduction target be set in law under the Zero Carbon Bill?

→ Pick one:

- Yes
- No

[Optional comment box]

2. What process should the Government use to set a new emissions reduction target in legislation?

- **The Government sets a 2050 target in legislation now**
- **Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.**

[Optional comment box]

3. Which is the best target for New Zealand?

→ Pick one:

- **Status quo.** This target is the current gazetted target of a 50% reduction below 1990 emissions levels by 2050.
- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050, but not other greenhouse gases.
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising the flow rate of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

4. How should New Zealand meet its emissions reduction targets?

→ Pick one:

- Domestic emissions reductions only (including from new forest planting)
- Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas that have strong environmental safeguards.

Emissions Budgets

SUMMARY

The Zero Carbon Bill could set up the emissions budgeting system.

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

- An 'emission budget' is a volume of emissions that can be emitted by a country over a certain period of time.
- Emissions budgets could be set 10-15 years in advance, with each budget specifying an allowable volume of emissions for a 5 year period. Future budgets could be revised within a threshold to allow for changes in the economy and technology, and some 'banking and borrowing' could be allowed between emission budgets periods (within limits).
- The Commission could have a role in advising Government on whether a future emissions budget should be revised. They could also provide expert advice and recommendations on the upper limit of international units that could be used in a budget period (subject to those units having high environmental integrity).

We are seeking your views on:

- *whether we need emissions budgets (or similar 'stepping stones') to chart the pathway to our 2050 target*
- *the intent and high-level design of emission budgets*
- *key elements of the proposal (including the look-ahead period of 10-15 years, the five year duration of each budget, annual monitoring and comprehensive review every five years).*
- *Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.*

Setting emissions budgets to create a pathway

There is a lot of uncertainty about the path of our emission reductions over the next three decades. Setting a clearer path for emission reductions by setting emissions budgets means communities and businesses will have more predictability about the pace and progress of emission reductions over time.

Setting emissions budgets is an important signal, but it won't have any direct impact on households and businesses, other than indicating how stringent abatement policies and interventions will need to be in future. It would be felt indirectly through reduced allocation of units within the NZ Emissions Trading Scheme (affecting emissions intensive products and services), and through specific government policy interventions to achieve the emission path. *plan Emission*
stay with the emission budgets

We already use emissions budgets

We already use emissions budgets to account for progress against international climate change targets. Our commitment under the Paris Agreement sets a stepping stone with a 2030 emissions target (updated every five years). But these aren't set far enough in advance. Emissions budgets describe a quantity of emissions allowed over a defined period (e.g. five years) and present a medium-term path for emission reductions.

Decisions need to be made about how emission budgets can be used to support achievement of the 2050 target and how current emissions budgeting to meet international targets will need to be adapted to accommodate this.

Choices to get there → *clear title*

There is no ideal or perfect way to set a country's emission reductions path, trade-offs are required. The table below sets out two options: a prescribed approach, and an adaptive approach.

	Advantages	Disadvantages
<p>Option 1</p> <p>Prescribed approach - outlining the emissions path all the way out to 2050</p> <p>As adopted by the EU</p> <p><i>check with Matt</i></p> <p><i>Poland revised EU's roadmap so can't refer to EU but EU Commission, but I don't think there's a prescribed pathway to 2050</i></p>	<ul style="list-style-type: none"> This gives a high degree of predictability of the pathway to the long-term 2050 target It is simple, and administratively simple to implement. 	<ul style="list-style-type: none"> It assumes we have very good information about the next 30 years (i.e. costs of abatement, the needs of our communities and our economy, and international trade etc.), which is not the case – these things are highly uncertain. May lock us into high costs later
<p>Option 2</p> <p>Adaptive approach – setting the emissions path for a defined period into the future, and extending this regularly.</p> <p>Approach adopted by the UK¹³ and others</p>	<ul style="list-style-type: none"> Provides predictability of the emission reduction path over the medium term (e.g. over 10-15 years) Allows adjustment to reflect changing circumstances <i>types</i> adaption to changing circumstances in the longer term (e.g. changing emission reductions costs). 	<ul style="list-style-type: none"> This option is slightly more complex, and likely to be more costly to implement Offers less certainty than option 1

The proposed approach to setting a path to the 2050 target

The Government has a preference for the adaptive approach (Option 2) to set the path towards the 2050 emission reduction target. This provides a good balance between signalling the emission reduction path far enough into the future, while also allowing flexibility to deal with changing circumstances. Allowing some flexibility in the path is essential to cope with changes such as much higher (or lower) abatement costs than expected. This will result in a lower abatement cost for New Zealand to reach the 2050 emission reduction target (even if administration costs are slightly higher).

why?

Design choices within the adaptive pathway

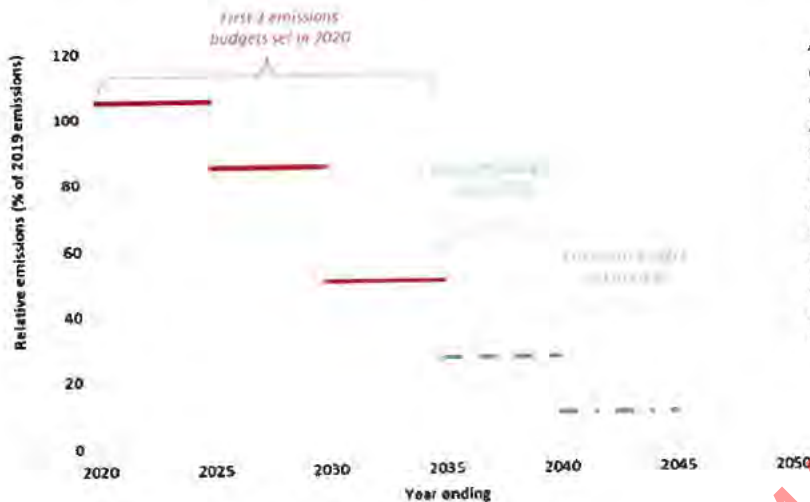
Within the preferred option of using an adaptive path, there are still many detailed design choices. These include how far in advance emissions budgets could be set, how emissions budgets should be monitored, whether budgets can be revised and whether they can be banked and borrowed.

¹³ The United Kingdom is also covered by the EU pathway

Setting emissions budgets into the future

A key design choice for emissions budgets is how far into the future they are set. Too short a period provides less predictability for businesses and communities. Too long a period (over 15 years) requires decisions to be made today on very uncertain information.

We propose setting a minimum 'look-ahead' timeframe of between 10 and 15 years. This is a good balance of reducing uncertainty and remaining flexible to future changes in technology. Setting emissions budgets over these timeframes depoliticises the process as the Government of the day, will not be able to set or influence the budget for their own political term.



An initial set of three emission budgets of five year durations could be set in 2020 providing coverage out to 2035. This would provide abatement predictability for a minimum of 10 years (two budgets) and maximum of 15 years (three budgets). Subsequent budgets could be set in five year intervals, with the fourth set in 2025.

When to set budgets

To determine the right length of an emissions budgets, the main trade-off to consider is the flexibility provided by having more budget periods versus the additional administrative cost of setting and monitoring more frequent budgets. We propose a five-year emissions budget duration. For more detailed analysis see Factsheet on budgets at [XX link](#).

What issues to consider when setting emissions budgets

When advising on budgets, there are a number of considerations we need to take into account. This will help ensure the process is transparent and consistent. This approach is used in the United Kingdom, which offers a useful precedent. It accounts for:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy
- differences in circumstances between England, Wales, Scotland and Northern Ireland

won't be obvious what these costs are or the scale

? is this copied (pasted) from UK? make it clearer or summarise relevant points

- circumstances at European and international level

We are seeking your views on the most important matters that New Zealand should consider when undertaking this work. Where we could differ from the UK, would accounting for our obligations under the Treaty of Waitangi, as well as any new 2050 emissions reduction target we have set.

This role is likely to fall to a new Climate Change Commission. It would benefit from working with government agencies as it prepares its advice. This would need to be carefully managed to ensure the Commission maintains its independence.

Monitoring emissions budgets

We need to monitor emissions to determine whether New Zealand is on track (or not) to meet a particular emission budget. New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations) and could be used for this purpose. We propose that a brief annual report is produced to show how New Zealand is tracking towards the emission budget, alongside the five-year review period discussed above. For more detailed analysis see Factsheet on emissions budgets at XX link.

footnote to explain what this is

but who?

Revising emissions budgets

Having the ability to revise budgets could help manage uncertainty over long timeframes, and be constrained by specific conditions. Allowing emissions budgets to be revised in some circumstances could:

- minimise the risk of overly conservative or overly tough budgets being set (delaying abatement action)
- allow for a more adaptive approach that can respond to changing circumstances (e.g. unanticipated technological innovation).

Banking or borrowing from one budget to the next

A strong compliance regime could cause the Government of the day to try to exactly meet a budget, even if this comes at a high cost. For example, setting stringent policies in the last few months of an emission budget period to stay within budget could lead to significant costs and disruptions to people's lives, and bring minimal benefits for emissions reductions. For that reason, we propose introducing a small amount of flexibility, which would set a threshold at which the budget is considered to be met (eg as long as it was within 5 per cent within the budget).

→ can we justify this range? e.g. int'l examples?

Any shortfall in abatement would still be reported on, and could be borrowed from the next emissions budget. Alternatively, if greater reductions are achieved earlier, the excess abatement would be carried forward to the next emissions budget. within limits?

International units

As discussed earlier, the current Government has indicated it will place its primary reliance on reducing emissions in New Zealand. However, the ability to purchase international units may become an important option if we face very high domestic abatement costs. We don't want to rule out the option of using international units at this stage. As discussed in chapter x, the Commission could play a role in providing expert advice and recommendations to the Government on the upper limit of international units that should be used within a budget period.

Aligning budgets with the NZ Emissions Trading Scheme

The emissions budgets and the NZ Emissions Trading Scheme can easily be designed to be compatible. We are making improvements to the scheme that will give the Government the tools to align the volume of units¹⁴ in the Emissions Trading Scheme with our emission budgets.

Aligning emissions budgets with international commitments

Domestic emissions budgets and budgets used to account for NDCs have different purposes and therefore they do not need to be exactly the same. This was noted by the Parliamentary Commissioner for the Environment in the March 2018 "A Zero Carbon Act for New Zealand" report, and we are in strong agreement on this.

Importantly, the domestic emission budgets will be directly influenced by the form of the 2050 target, but how we account for our future NDCs will need to align with the requirements of the Paris Agreement. Domestic emissions budgets are able to incorporate some flexibility (e.g. the ability to be revised up or down). By contrast, NDCs cannot be revised down as they must demonstrate progression and reflect our highest ambition possible.

While emissions budgets do not need to be the same as NDCs, in setting and communicating the budget we will need to maintain confidence in New Zealand's intention to deliver on Paris Agreement commitments. For this reason, both our accounting for our NDCs and our domestic emissions budgets will need to be robust, transparent and aligned with international norms and clearly communicated to our international partners.

Government response

Budgets alone won't achieve our targets. We'll also need to implement policies to reduce emissions. We propose the bill requires Government to publish a plan to meet each emissions budget. The plan could also provide a longer term strategy for the economy and society to support the transition.

The Government's plan could include:

- specific policies within sectors to reduce emissions
- other actions we need to take. For example, supporting investment in low emissions sectors and funding for research
- how we address challenges faced by vulnerable communities and sectors.

We're proposing that the Government must publish its plan within a set timeframe after each budget has been announced.

↓
meanj?

¹⁴ A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

QUESTIONS

Emissions budgets

5. The Government proposes that **three emissions budgets of five years each** (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

→ Pick one:

- Yes
- No

[Optional comment box]

6. Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

→ Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation)
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

7. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets. **Please refer to section x.x for more detail.**

→ Pick one:

- Yes
- No

[Comment box]

Government response

3. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve 'emissions budgets'?

→ Pick one:

- Yes
- No

[Optional comment box]

4. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

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A new Climate Change Commission

SUMMARY

The Zero Carbon Bill can establish a new Climate Change Commission (the Commission) to provide independent expert advice, and hold Governments to account towards progress.

- There are a range of roles that the Commission could take, from advisory to decision-making. We propose a core set of advisory functions, and a requirement that the Government provide public responses to the Commission's advice.
- Under this model, the Commission would:
 - provide advice to Government on the level of emissions budgets
 - provide advice on areas of economy to focus on achieving emissions budgets
 - monitor New Zealand's progress towards emissions budgets
 - monitor New Zealand's progress towards reducing the risks of climate change
 - provide advice to Government on issues related to climate change as requested.
- There is also a range of roles that the Commission could play in respect of the NZ Emissions Trading Scheme (NZ ETS), from advisory to decision-making.

We seek your views on:

- the proposed set of core functions for the Commission, and the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- what expertise Commissioners need.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Introducing the institutions to support transition

Achieving our long-term climate change goals will require us to plan and act throughout the short, medium and long term, well beyond political cycles. To support investments and decisions that will reduce our emissions and improve our resilience, New Zealanders need confidence that climate change policies will remain in place, and that our pathway to the long-term goal will stay broadly consistent. *with what?*

Currently, decisions on climate change policy are made by Government through the support of advice from officials across government departments. New laws, and changes to existing laws, are subject to the Parliamentary process. These checks and balances are an important part of our multi-party democracy, and provide flexibility for the elected Government of the day to make decisions according to their own priorities.

OUR CURRENT INSTITUTIONAL ARRANGEMENTS FOR CLIMATE CHANGE POLICY

The Ministry for the Environment is the lead agency providing advice on domestic climate change policy. The Ministry of Foreign Affairs is the lead agency on international climate change issues. The Ministry for Primary Industries (MPI) provides advice on agriculture and the treatment of forestry in the NZ Emissions Trading Scheme. The NZ Emissions Trading Scheme is primarily administered by the Environmental Protection Authority, with MPI administering the forestry functions.

Advice on other portfolios related to climate change, such as agriculture, transport and energy, is led by the relevant agency (for example the Ministry of Transport and the Ministry for Business, Innovation and Employment)

The Parliamentary Commissioner for the Environment provides independent reports to Parliament on environmental concerns, including climate change.

Why set up a new Climate Change Commission

Climate change is a long term problem yet decisions are needed now on how we address it. Therefore, there is a strong case for "insulating" the policy making process from short term political pressures. Introducing a new Climate Change Commission would provide ongoing independent, expert advice to Government on how we make the transition. It will help provide this insulation.

Other countries¹⁵ have established an independent institution to provide independent, expert advice to government, and both the former and current Parliamentary Commissioners for the Environment (PCE) and the Productivity Commission have recommended an institution like this should be established in New Zealand.

For the Commission to be successful and become a trusted and stable part of New Zealand's government institutions, it needs:

- political consensus underpinned by widespread community and business support so it endures across multiple political cycles and remains independent from Government
- stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process, a capable secretariat, and access to good quality data and arrangements in place to support data sharing (including with government departments).
- to work in the New Zealand context, for example, our emissions profile means we face some hard choices early on, in how and where to reduce emissions.

CASE STUDY: THE UK MODEL

The UK's Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the PCE and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee also has a Sub-Committee dedicated to the role of adaptation.

¹⁵ This includes the United Kingdom, Australia, Denmark, Ireland, Finland, and Sweden.

What role could the Commission have?

The Commission's role could range from advisory to decision-making. Decisions on climate change policy will impact which sectors and regions face costs, and which have opportunities throughout the transition. Normally, these types of decisions are made by Governments because they require trade-offs against multiple priorities, like employment, education and health.

Determining the right role for the Commission depends on balancing how much power and independence we give to appointed Commissioners, compared to democratically accountable bodies (i.e. the Government)

Too much power could make a Commission more susceptible to changes by future parliaments. However, not giving enough weight and attention to the Commission's recommendations, could reduce its effectiveness. Both the PCE and the Productivity Commission have recommended New Zealand establishes a Climate Change Commission based on the example of the United Kingdom Committee on Climate Change. An advisory role, with mechanisms built in to hold Government to account, as described in the table below.

Table XX: Possible options for the role of a new Climate Commission

	Advantages	Disadvantages
<p>Option 1:</p> <p>Advisory-only</p> <p>Provides expert advice but the Government is not obliged in a strong way to respond to recommendations</p> <p><i>(Similar to the Parliamentary Commissioner model)</i></p>	<p>Provides an additional source of expert independent advice on climate change issues</p>	<p>Not likely to give strong additional accountability to Government, as there is no requirement to publicly respond to advice.</p>
<p>Option 2:</p> <p>Advisory, with mechanisms built in to hold Government to account</p> <p>Government must publicly respond to and provide rationale when it deviates from the Committee's advice.</p> <p><i>(Similar to the UK model - Committee on Climate Change)</i></p>	<p>Creates a sound source of advice from an independent Committee, and a hurdle for Government to deviate from that advice.</p> <p>Maintains Government's ability to make decisions on policy, and to trade off outcomes across the economy and society.</p>	<p>The commitment to the long term goal under this option is not as strong as the decision making option.</p>
<p>Option 3:</p> <p>Decision-making</p> <p>Commission makes decisions or sets policy under its own authority at arms-length from Government</p> <p><i>(Similar to our Commerce</i></p>	<p>Creates a very strong commitment to the long term goal by delegating decisions to an independent authority.</p>	<p>Decisions on climate change policy require trade-offs against a range of outcomes. Delegating decisions to an independent authority risks progress on climate outcomes, while neglecting other social and economic outcomes.</p> <p>Delegating too much power to the Commission could risk susceptibility to</p>

Commission)

No other countries have a Commission with a decision-making role for climate change.

changes by future parliaments. This could damage its stability.

7 We propose that the Commission play a predominantly advisory role (option two). This creates a new channel of independent public advice, and strikes a good balance between providing additional accountability, while ensuring governments are able to make decisions based on their own priorities.

Advisory and monitoring functions

We propose a core set of advisory and monitoring functions for the Commission:

- **Emissions budgets** - Advise on the most appropriate level and make-up of an emissions budget and monitor our progress towards achieving them.
- Alongside the Commission, government agencies will continue to provide advice to Government on climate change policy. The Commission undertaking the functions above means that all advice and monitoring will be public and transparent.*
- **2050 Target** – Periodic check-in on the target level in light of changes in technology, as well as accounting for what the rest of the world is doing. Depending on the process decided to set the new 2050 emissions reduction target, the Commission could provide advice to Government on the most appropriate level to set. Please see chapter [x] for more details.

- **Adaptation** - Monitor New Zealand's progress towards addressing the risks posed by climate change. Publish a report setting out progress towards delivering the National Adaptation Plan.
- We will need to consider how the role of the Commission fits with other government agencies as we develop the adaptation package.*

The Commission's role in the NZ Emissions Trading Scheme

There is a question about the role the Climate Change Commission takes on the NZ ETS. The NZ ETS is a strong economy-wide tool that can be used to support the Government to reduce emissions and meet its climate change targets. (For more detail see figure x on page x).

There is a strong case for the Commission taking an advisory role on the settings of the NZ ETS. A key finding of the most recent review of the NZ ETS is that current settings have created significant regulatory uncertainty. There is a clear need to provide greater policy stability and predictability if the NZ ETS is to play an effective role in reducing emissions. This is supported by a number of submissions on the review of the NZ ETS, the recent Productivity Commission report on a low-emissions future, and [PCE report]. It is considered that independent advice from the Climate Change Commission will strengthen decision-making in the NZ ETS.

There is also the option the Commission could take a decision making role with respect to the NZ ETS. This would involve the Commission making a set of key decisions on the NZ ETS each year. These would be:

- The number of units to be auctioned by the Government
- The number of units allocated to emissions intensive and trade exposed industries
- The level of the price safe guards (ceiling and floors) *(we don't have a floor) &*
- The level of international units available in the New Zealand carbon market

This may result in more consistent decision making on the NZ ETS and support greater investment in low emission technology and forestry. But it would also mean the Commission would have decision making power on issues that more appropriately sit with the Government than with an independent institution. For example:

- The level of international units made available in the NZ carbon market will have a significant impact on the overall cost of meeting our target
- The level of any price floor or ceiling will signal the minimum and maximum level of carbon prices in the economy
- The level of auctioning will ensure the economy is delivering the appropriate level of emission reductions to meet our carbon budgets *want be clear to non-experts*
- The level of free allocation sets the carbon cost exposure to emissions intensive and trade exposed industries

Each of these decisions has implications for the carbon costs for businesses and households, the overall functioning of the New Zealand carbon market and the Government's fiscal position. As such, any decision to delegate NZ ETS decision making powers to the Climate Change Commission would need to be considered very carefully and demonstrate clear advantages over and above that of taking an advisory role.

Regardless of whether the Commission had an advisory or decision-making role in the NZ ETS, the Government would still be required to follow normal parliamentary processes to make changes to NZ ETS legislation.

WHAT THE NZ ETS DOES

The New Zealand Emissions Trading Scheme (NZ ETS) is the Government's principal policy response to climate change. Its objective is to support and encourage global efforts to reduce greenhouse gas emissions by:

- assisting New Zealand to meet its international obligations
- reducing New Zealand's net emissions below business as usual levels.

It creates a system in which greenhouse gas emissions are priced. This is intended to create a financial incentive for businesses to invest in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission units (NZUs) as their trees grow and absorb carbon dioxide.

The NZ ETS requires all sectors of New Zealand's economy to report on their emissions and, with the exception of biological emissions from agriculture, to purchase and surrender emissions units to the Government for those emissions.

The NZ ETS was reviewed in 2015/16. There was a clear call from stakeholders to improve the stability and predictability of the scheme needs. As a result the Government has made in-principle decisions on a package of four proposals to improve the operation of the NZ ETS in the 2020s. The in-principle decisions are expected to be implemented in 2019 following further policy development and consultation.

The in-principle decisions include: introducing auctioning of units, to align the NZ ETS to our climate change targets; limiting participants' use of international units when the NZ ETS reopens to international carbon markets; developing a different price ceiling to eventually replace the current \$25 fixed price option; and coordinating decisions on the supply settings in the NZ ETS over a rolling five-year period.

The Commission's advice on climate change policy

When the Commission provides advice to the Government on the level of the ^{commission} budget, we propose that the Commission also provides advice on areas of ^{the} economy to focus on achieving emissions budgets.

plain Eyrw

In addition, the Commission could provide expert advice on issues related to climate change. This would be as requested by the Government and where there is benefit of it coming from an independent authority. The types of issues ^{what we} could receive advice on from a Commission include:

- the development of or changes to the 2050 Strategy
- continuing the interim Climate Change Committee's work on the treatment of agriculture in climate change policy *not yet mentioned in the doc*
- the pathway to 100% renewable electricity.

There could also be value in the Commission initiating its own enquiries.

The Commission's advice on the 2050 target

The Commission could provide a statement of the appropriateness of the 2050 target when it provides advice on the levels of emissions budgets. This statement could also recommend whether the target level should be reviewed. Following the statement from the Commission, the Government could then initiate a review of the target level. The decision to initiate a review would be taken by the Government, and would allow consideration of the Government's other priorities, and advice from government departments.

We propose the first such statement should come when the Commission provides advice on the level of the fourth emissions budget (covering the period 2035 to 2040), which is expected to occur in 2025. At this point we will have a better idea of how New Zealand and other countries are progressing on their low emissions transitions.

The implications for the Government on the Commission's role and functions

The Zero Carbon Bill will also propose new requirements on Government to respond to the reports of the Commission. Where the Commission provides advice, such as on the emissions budgets, Government would be required to take this into account and issue a public report in response. Where the government's actions differ from the advice of the Commission, these reports should outline why. For more detail see FACTSHEET on climate commission

Where the Commission has monitoring functions, the Government would also be required to publicly respond to the Commission's monitoring report. Requiring the Government to do this within a timeframe of six to twelve months will provide additional accountability.

What should the Commission consider when it provides its advice?

Setting out in law the matters that the Commission is required to consider in undertaking its work will help ensure its work is transparent and consistent, and supports the just and effective transition. The UK Climate Change Act 2008 sets out the issues that the Secretary of State¹⁶ and UK Committee on Climate Change are required to take into account in connection with carbon budgets, and offers a useful precedent.

We are seeking your views on the most important matters that a Climate Change Commission in New Zealand should consider in undertaking its work. In addition to core science, technology, economic, fiscal and social circumstances suggested under the UK model¹⁷, regional differences, the expectations of us under the Paris Agreement, the Treaty of Waitangi, and a new 2050 emissions reduction target may also be important factors. There could also be value in the Commission considering broader environmental circumstances, *rephrased*

¹⁶ Similar to our Minister for Climate Change

more about reving 2050 target in it?

including the impact of any decisions on areas such as water quality. For more detail see FACTSHEET on climate commission

What expertise should the Commission have?

The credibility of the Commission depends in large part on its membership: Commissioners would need to have a high level of standing in society, and be seen as experts in their fields as opposed to stakeholders representing a particular interest group. Commissioners will also need strong interpersonal and communication skills, and be open to having their own views challenged.

We consider essential expertise needed on the Commission is:

- climate change policy (including emissions trading)
- resource economics and impacts (including social impacts, labour markets and distribution)
- te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- climate and environmental science
- experience with addressing adaptation challenges like planning, insurance and local government
- risk management
- eEngineering/infrastructure
- sector specific knowledge on transport, energy, forestry, and agriculture
- international competitiveness

Desirable, but non-essential, expertise could include:

- business competitiveness
- knowledge of the public and private innovation and technology development system
- behavioural economics
- community engagement

Including the expertise needed in the Commission in primary legislation aligns with the UK approach¹⁸ and the recommendation of our PCE¹⁹. There could also be additional expertise that would be valuable, for example public health and wellbeing.

How the Commission could be set up

The organisational form of the Commission will depend on its functions and powers. However, the requirement for independence, combined with the need to interact with Government to share information and resources with public sector agencies, means the most appropriate form of the Commission is likely to be an Autonomous Crown Entity (ACE), an Independent Crown Entity (ICE), or a unique entity exhibiting characteristics of both.

ACEs and ICEs are the two most independent forms of Crown entities. An ACE must have regard to Government policy that relates to the entity's functions and objectives if directed by Minister. An ICE is generally independent of Government policy, with no power for the Minister to direct, unless specifically provided for in an Act.

The appointment process will depend on the type of organisational form chosen for the Commission, as each has a different level of independence from Ministers. A transparent and robust appointment process will be an important contributor to the credibility of the Commission, so the intention is for the appointment process to be at the more independent end of the spectrum. Final decisions on the Commission will also

¹⁸ This approach also aligns with the UK's Climate Change Act 2008 set out in: <https://www.legislation.gov.uk/ukpga/2008/27/schedule/1>

¹⁹ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

need to consider its fit with other government agencies, including whether any existing functions need to be changed or move.

QUESTIONS

Climate Change Commission

8. Should New Zealand have a new independent Climate Change Commission to help keep us on track to meeting our long-term climate change goals?

→ Pick one:

- Yes
- No

[Optional comment box]

9. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with the proposed list of core functions? Please refer to section x.x for the full list of proposed advisory and monitoring functions.

→ Pick one:

- Yes
- No

[Optional comment box]

10. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

→ Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Optional comment box]

11. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed list? Please refer to section x.x for the full list of proposed expertise.

[Comment box]

Adapting to the impacts of climate change

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- Even with successful mitigation of greenhouse gases, we will need to adapt to the impacts of climate change. *reduction*
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.

✕ We propose that the Zero Carbon Bill include the following adaptation provisions to help decision makers manage their climate change risks in a systematic way:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

We are seeking your views on:

- the scope, scale and content of the National Climate Change Risk Assessment and National Adaptation Plan.
- the respective roles of central government and the Climate Change Commission for each of the adaptation provisions.
- how an Adaptation Reporting Power should be used and who it should apply to.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Increasing our resilience

Regardless of what level of ambition we set within a new Zero Carbon Bill, our climate will continue to change over the coming decades.

As a result, we will continue to face risks from rising sea levels and extreme weather, but also from slow changes to our ecology – our animals, plants and soils underpin not only the primary sector, but also human health.

The costs from climate change are already high, and growing. For example, in the last 10 years the cost of weather events to our transport network has increased from about \$20 million per year to over \$90 million per year.²⁰ Reports from the Parliamentary Commissioner for the Environment indicate that the cost of replacing every building within half a metre²¹ of the spring high tide mark could be \$3 billion and within 1.5 metres, as much as \$19-20 billion²².

²⁰ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

²¹ The mid-range projected sea-level rise over the next 50 years is about 30 cm, and could vary between 20 and 50 cm. Note in the last 100 years seas have risen around 14-22 cm.

²² "The RiskScope analysis in NIWA, 2015b shows that the replacement value of buildings within 50 centimetres of the spring high tide mark is \$3 billion and that of buildings within 150 centimetres of the spring high tide mark is \$20 billion." *Preparing New Zealand for Rising Seas: Certainty and Uncertainty: Office of the Parliamentary Commissioner for the Environment, New Zealand. 2015. CHANGE*

✓ The Zero Carbon Bill could help decision-makers plan ahead so we can manage these risks more effectively. It could put requirements into law that we understand the risks, and have a plan to manage them. We could also introduce ways to encourage or require some organisations to share more information on their exposure to climate change risks.

We are committed under the Paris Agreement to plan for and take action on climate change adaptation. In 2016, a Climate Change Adaptation Technical Working Group (CCATWG) was set up to provide advice on building New Zealand's resilience while sustainably growing our economy. Two reports have now been released²³, with the most recent identifying a series of actions New Zealand should take to increase resilience and adapt to our changing climate.

✓ This section covers the choices we have to make around how we adapt to climate change.

✓ Creating the right environment for adaptation

At the moment, the way we respond and adapt to climate change is ad hoc. Many of the risks, impacts and mitigation are dealt with across a number of different legislative and regulatory regimes.

There are gaps in our information. We have some knowledge about the impact of sea level rise on our coastlines and communities, but even less about the impact rising temperatures will have on our natural systems – what unwanted plants and animals might arrive as a result, or the impact of ongoing extreme weather events on production in the primary sector. There's more work to do to understand the possible impacts on our health, biodiversity and culture over time.

Setting up the right tools for decision-makers will help us look across the range of areas that might be impacted by a warming climate. It would help us consider the risks to the whole of society and the economy and provide good guidance for the action we will take.

If we introduce, through primary legislation, a way to assess risks and create a plan to adapt, we can take a broad view, and ensure the right settings are in place to respond. This includes how we respond to different needs in different communities around New Zealand. We propose that the Zero Carbon Bill includes:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

A National Climate Change Risk Assessment

Climate change exacerbates existing risks and creates new risks.²⁴ Many councils and communities are already dealing with some of these.

At the moment, our actions to adapt are ad hoc and we can't measure our effectiveness. To address this we propose introducing a compulsory national climate change risk assessment that is updated regularly.

Having this type of assessment is a priority, according to the Climate Change Adaptation Working Group. If we can get a better understanding of which areas and communities are the most exposed and vulnerable to risks, we can ensure we're taking the most effective actions to address these.

✓ Our first step is determining what the risks are for people, infrastructure, the natural environment and the economy. This information needs to be accessible and standardised to help decision-makers - including

²³ <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

²⁴ IPCC 2014 reference.

iwi/Māori, communities, transport and infrastructure sectors, private sector firms, and central and local government.

A risk assessment would need to align and inform other risk work by Government. It could provide valuable information to the National Security System and the Ministry for Civil Defence and Emergency Management and other interested agencies. The proposed National Climate Change Risk Assessment would:

- identify risks to New Zealand that arise from, or are worsened by climate change
- provide the necessary evidence to improve how we communicate current and future risks and opportunities
- provide a foundation for investment and decision-making, and guide future work
- inform development of a National Adaptation Plan (see section on the plan)
- Inform planning and actions to minimise the cost of future climate-related disaster response and recovery
- contribute to an approach across all sectors to help stimulate action in a systematic way
- provide accessible and standardised information for decision-making

Placing this requirement in primary legislation means future risk assessments continue to take a broad view across the economy and society and there will be continuity over time, creating a more stable policy environment.

make it clear that this is preferred option
 A National Climate Change Risk Assessment report would be publicly available, updated at five yearly intervals and the Climate Change Commission would hold responsibility for this.

While the Commission is being set up, the first Assessment could be started immediately by external experts, with future assessments falling under the responsibility of the Commission. Future assessments could include information obtained through the use of the Adaptation Reporting Power (see more details later in this chapter).

A National Adaptation Plan

Climate change adaptation is not currently integrated into many central government agency objectives. This means legislation and regulatory frameworks and policies around long-term planning are not well aligned. This makes it difficult for local government, businesses and communities to proactively organise themselves and take action.

To date most action taken to adapt to climate change has been reactive. In the case of local government, responses to climate damage are paid for out of maintenance funds. With clear direction, local government and others would have more certainty. This would mean they could plan funding for ongoing climate change-related impacts.

We propose introducing a way to have a planned response to climate change risks. This would provide a national approach to prioritising adaptation action. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, a National Adaptation Plan would:

- identify priority actions for addressing risk, as identified in the climate change risk assessment, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks
- help clarify roles and responsibilities on climate change adaptation across different pieces of legislation, different sectors of society, and determine who needs to act on what and when

- be aligned with the work of Civil Defence and Emergency Management, including the need for community and individual resilience
- be designed to deal with changing risks and encourage proactive planning in a comprehensive way
- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society and including iwi/Māori
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

✓ We propose that the Government hold responsibility for the National Adaptation Plan. To address local challenges, we would develop the plan with local government and other stakeholders. The Plan should be updated at five-yearly intervals, to synchronise with the five-yearly climate change risk assessment process. *starting when?*

✗ We would require ongoing evaluation of how the National Adaptation Plan is being implemented. This will ensure the Plan endures, and that it leads to effective adaptation action. We recommend that the Climate Change Commission review how the National Adaptation Plan is being implemented at the mid-point of each five year cycle. The outcomes of each review could be used to update the next iteration of the plan.

Exploring potential for an Adaptation Reporting Power

useful to clarify who "we" is
 We want to explore whether we should introduce an Adaptation Reporting Power. We think we could get a better picture of our risks and opportunities if we could get more information from organisations that own public infrastructure or deliver public services.

At the moment we don't have a clear picture of what action is being taken as part of risk management processes by organisations which are 'privatised' or in crown entities/state owned enterprises/council controlled organisations.²⁵

We want to hear your views on whether we should look into this further. The type of questions we could explore are:

- the value of having a targeted and specific reporting obligation from organisations
- who this would apply to – should this cover state owned entities, local and central government and /or private companies that provide public services like energy, rail and transport.
- what the choices are around making such reporting optional or mandatory
- what such reporting should cover. For example, how ready organisations are to respond to risks and opportunities

²⁵ These organisations all have different governance arrangements, some constituted under specific legislation, some will be crown entities, some private companies, some publicly listed companies.

We want to hear your views on whether to explore this further.

There are likely to be some benefits from this approach. Organisations would be better informed, and more prepared to mitigate or manage risks that have been identified. The reports would reveal how 'ready' organisations are. And they would help government design supportive policies and to ensure that the regulatory environment encourages adaptation.

Experience in the United Kingdom has found that mandatory reporting delivers a higher standard of reports, as well as complete coverage from the required organisations, providing a better understanding of the adaptation action being taken.

However, it would also bring administrative and compliance costs to both organisations and government.

do we have an idea of scale of the costs?

QUESTIONS

Climate Change Adaptation

12. Do you think the Zero Carbon Bill should cover adapting to climate change?

→ Pick one:

- Yes
- No

[Optional comment box]

13. The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with the proposed functions? Please refer to section x.x for the full list of proposed functions.

→ Pick one:

- Yes
- No

[Optional comment box]

14. Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

→ Pick one:

- Yes
- No

[Optional comment box]

PART FOUR: Next steps

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. The Zero Carbon Bill won't get us through the transition by itself. We also need to continue with a strong emissions pricing regime through the NZ ETS, develop regulation and policy in areas to complement emissions pricing, and support innovation and investment in low emissions technologies.

We are not starting from scratch. Government has a number of existing initiatives alongside the Zero Carbon Bill, including:

- strengthening and improving the New Zealand Emissions Trading Scheme
- developing land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees, and
- establishing a Green Investment Fund to stimulate new investment in low-carbon industries.

Our towns and cities are also contributing. Regional and territorial authorities are improving their understanding of how to adapt to climate change and putting in place plans for low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. For example, it has worked with the dairy sector to develop the 'Dairy Action for Climate Change', helping farmers reduce emissions over time. The Low Emissions Roadmap with Fonterra is helping large energy users' transition off fossil fuels and onto renewable energy sources.

Your feedback will help shape the Zero Carbon Bill

Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill. The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill.

By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

By the end of October, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

WHAT OTHER ACTION CAN YOU TAKE NOW?

Individual action

Positive change from businesses

Government enabling climate action

A new initiative, the Green Investment Fund, will provide public funding (and encourage private funding) to invest in projects and businesses that will reduce climate pollution and increase New Zealand's resilience to the changing climate.

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Appendices

Table x: Mitigation opportunities in key sectors where emissions reductions are possible

ENERGY	<p>The energy sector is experiencing rapid technological innovation and will play a huge role in the transition. For example:</p> <ul style="list-style-type: none"> • Electric Vehicles are already economic over the lifetime of the car in some roles and we can expect EV uptake will substantially reduce emissions. • Hydrogen fuel cell vehicles might also play a role, and/or advanced biofuels and similar technologies, particularly for moving freight. • Industrial process heat (e.g. milk and meat processing) holds potential to improve energy efficiency and switch to much lower emission fuels such as woody biomass or electricity. • Wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We still have extensive high-quality untapped renewable energy resources. • Energy efficiency improvements from the use of residential LED lighting and industrial scale plant modifications can reduce emissions directly or help lower costs of using cleaner energy sources.
AGRICULTURE	<p>A methane vaccine is under development to mitigate on-farm emissions in the dairy, sheep and beef sectors. Research and development may give rise to material on-farm abatement opportunities in the future.</p> <p>Land use change to lower-emitting uses will likely be needed to achieve material emission reductions from agriculture.</p>
FORESTRY	<p>Increasing our forested land area will play a huge role in soaking up more emissions, both commercial plantation forests and permanent native forests.</p> <p>Forestry helps buy us time until other technological developments or options become available, but we'll need continued emissions reductions post-2050 - beyond planting ever more trees - to maintain a low-emissions economy.</p>
INDUSTRIAL PROCESSES	<p>Efficiency gains in industrial processes (i.e. steel, cement, fertiliser etc.) will help as there are currently a limited number of available technology options.</p> <p>Industrial product-use sectors have viable alternatives, and improved management practices, that can markedly reduce the impacts of other high greenhouse gas potential products (e.g. improving refrigerant use and disposal).</p>
WASTE	<p>Waste can be a valuable resource, for example, Palmerston North's waste treatment plant anaerobic digestion of organic waste creates 'renewable methane' used to generate electricity.²⁶</p>

²⁶ <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

We seek your feedback on the specific proposals in the Zero Carbon Bill.

s 9(2)(g)(i)

2050 Target

5. Should a 2050 emissions reduction target be set in law under the Zero Carbon Bill?

→ Pick one:

- Yes
- No

[Optional comment box]

6. What process should the Government use to set a new emissions reduction target in legislation?

- **The Government sets a 2050 target in legislation now**
- **Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.**

[Optional comment box]

7. Which is the best target for New Zealand?

→ Pick one:

- **Status quo.** This target is the current gazetted target of a 50% reduction below 1990 emissions levels by 2050.
- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050, but not other greenhouse gases.
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising the flow rate of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

8. How should New Zealand meet its emissions reduction targets?

→ Pick one:

- Domestic emissions reductions only (including from new forest planting)
- Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas that have strong environmental safeguards.

Emissions budgets

9. The Government proposes that **three emissions budgets of five years each** (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

→ Pick one:

- Yes
- No

[Optional comment box]

10. Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

→ Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation)
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

11. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets. **Please refer to section x.x for more detail.**

→ Pick one:

- Yes
- No

[Comment box]

12. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve 'emissions budgets'?

→ Pick one:

- Yes
- No

[Optional comment box]

13. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

Climate Change Commission

14. Should New Zealand have a new independent Climate Change Commission to help keep us on track to meeting our long-term climate change goals?

→ Pick one:

- Yes
- No

[Optional comment box]

15. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with the proposed list of core functions? Please refer to section x.x for the full list of proposed advisory and monitoring functions.

→ Pick one:

- Yes
- No

[Optional comment box]

16. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

→ Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Optional comment box]

17. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed list? Please refer to section x.x for the full list of proposed expertise.

[Comment box]

Climate Change Adaptation

18. Do you think the Zero Carbon Bill should cover adapting to climate change?

→ Pick one:

- Yes
- No

[Optional comment box]

19. The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with the proposed functions? Please refer to section x.x for the full list of proposed functions.

→ Pick one:

- Yes
- No

[Optional comment box]

20. Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

→ Pick one:

- Yes
- No

[Optional comment box]

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04588
<u>Security Level</u>	In confidence	Number of Attachments #	1. Cabinet paper
Date Submitted:	18 May 2018	Response needed by:	
MfE Priority:	Urgent	Action Sought:	Noting

Draft Zero Carbon Bill discussion document and Cabinet paper

Key Messages

1. This briefing attaches the final Cabinet paper for consultation on the Zero Carbon Bill (Appendix 1). This in turn appends the latest draft of the discussion document.

The discussion document has been revised since you last saw it

2. We have continued to improve the overall readability of the discussion document, reducing its length, streamlining its contents, and incorporating your feedback. We will continue to refine the document in consultation with you and your office over the coming weeks, and the delegated group of Ministers following Cabinet consideration on 28 May.

We have also updated the Cabinet paper

3. In addition to changes suggested by your office, we have now incorporated the results of our economic modelling (see paragraphs 30 to 37).

Next steps

4. As agreed with officials on 16 May, the following process will apply to finalising the discussion document, and gaining Cabinet approval to consult.

Table 1. Updated Cabinet process for the Zero Carbon Bill

Milestone	Date
Draft discussion document and Cabinet paper lodged for consideration by ENV Committee	Friday, 18 May
ENV Committee considers the draft discussion document	Tuesday, 22 May
Officials incorporate feedback	Wednesday, 23 May – Friday, 25 May
Draft discussion document is lodged late for consideration by Cabinet	Friday, 25 May
Cabinet considers a revised discussion document, and approves release pending final changes approved by delegated Ministers	Monday, 28 May
Delegated group of Ministers approves final changes to the discussion document	Before 31 May
Group of Ministers meets between 31 May and 7 June to agree the economic narrative and common questions and answers	Between 31 May – 7 June
Discussion document released, consultation starts	Thursday, 7 June

Two public meetings are held	Before 14 June
Consultation roadshow begins	Thursday, 14 June
Consultation ends	Thursday, 19 July

Recommendations

5. We recommend that you:

a. **Lodge** the attached Cabinet paper and draft discussion document on 18 May

Yes/No

b. **Meet** with officials on 22/23 May to discuss feedback from the ENV Committee

Yes/No

Signature



Janine Smith
Manager
Climate Change Policy

18-5-18

Hon James Shaw
Minister for Climate Change

Date

Ministry for the Environment contacts

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Appendix 1. Draft discussion document: *The Zero Carbon Bill: Our Climate, Your Say*

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Ministry for the
Environment
Manatū Mō Te Taiao

Our Climate Your Say

DRAFT 18 May 2018

Consultation on the Zero Carbon Bill

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Acknowledgements

Insert acknowledgements here if required.

This document may be cited as: Ministry for the Environment. year. *Title of publication*. Wellington: Ministry for the Environment.

Published in month year by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: ISBN print version (print)
ISBN online version (online)

Publication number: ME xxxx

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This document is available on the Ministry for the Environment website: www.mfe.govt.nz.



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the most liveable place in the world*

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

Finding your way around the document

- Part 1 – Introduction
 - Outlines what climate change is, the impact it is having and our local and global context
- Part 2 – Proposals for the Zero Carbon Bill
 - Sets out the proposals for the Bill, including the targets and the stepping stones to meet them, the Climate Change Commission and how we can plan to adapt.
- Part 3 – What happens next?
 - Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [insert link].
- Submissions must be lodged by [xx date].
- Submissions can be:
 - completed online at [insert link]
 - emailed to [insert address]
 - posted to [insert address]
- Submissions should include the following details:
 - The title of the consultation Zero Carbon Bill
 - Your name or organisation name
 - Your email address, postal address and phone number.

Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission, including commercially sensitive information, and in particular which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this document under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

For more information

- Visit the Online Engagement Portal at [insert link]
- Ask the Zero Carbon Bill team at [insert email address]
- Attend one of the events and hui being held around the country and online.

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Minister's Foreword

Over the past summer many New Zealanders have experienced the changing climate in our everyday lives. The seas we swam in were warmer than anyone could remember. We had months of almost uninterrupted spectacular weather.

I say 'almost' uninterrupted because it was interrupted by a severe storm in January and two Pacific cyclones in February – Gita and Fehi. Roads were washed into the sea in Coromandel, Auckland's Tamaki Drive was flooded (again), and Golden Bay saw huge landslides and damage to crops.

New Zealand has always had dramatic weather. But the frequency and the severity of storms, coastal and river flooding, droughts and wildfires, is increasing. These will continue to increase as long as we continue to add large amounts of greenhouse gases into our atmosphere.

The costs to us are also increasing. We are seeing lost agricultural production, flood clean-up costs, sea-wall and road reconstruction, and so on. Insurance companies and banks are re-thinking their risk profiles and premiums for coastal homes and businesses.

All of this sounds like a lot of bad news – but we are now on the verge of being able to fix it. And in doing so, we can bring an extraordinary opportunity to upgrade our economy, not just to be 'clean and green', but also more productive and better paid.

There is a new industrial revolution taking place. This is happening particularly in energy and transport, but also in every other sector of the economy, including agriculture.

The countries leading the way are developing intellectual property, new technology and the products and services of the 'low-carbon economy'. Countries that do not lead are letting the opportunity pass them by.

In New Zealand, investment has been held back by the lack of a clear position on climate change or any signal about the direction we want the economy to go in. Will we stick with our current reliance on traditional (and high pollution) technologies and products? Or will we commit to replacing those technologies with new, clean ones?

The Zero Carbon Bill is designed to create certainty. It is intended to provide a long-term and stable policy environment, with a clear emissions target and a guided pathway to get us there.

That certainty will drive investment in new industries and create new jobs to upgrade our economy. We have opportunities to increase our renewable electricity generation, plant more trees, invest in new technologies, continue our world-leading research into reducing emissions on our farms, and support the growing Māori economy.

The transition is achievable, although very challenging. It will affect every sector of the economy, but the change will be more far-reaching in some than others.

For that reason we are absolutely committed that this transition will be planned, gradual and carefully phased in. We have had other transitions before, which were not well managed and led to displacement and upheaval. For this to work, we need to make sure we bring everyone with us and leave no one behind.

Cast your mind back thirty years, to 1988. The Internet didn't exist, at least not in its current form. But try to imagine running your school or your farm or your bank without the Internet today. It has transformed every aspect of the economy – and our lives. It has been disruptive, and it has also created tremendous opportunity, and whole new industries.

A planned transition over time gives us the best chance of minimising the negative social and economic impacts of change so it is just and fair for people, communities, and regions. The longer we leave our planning, the more abrupt and difficult change will be. We want to avoid that risk.

We are not starting from scratch. Nearly ten years ago, the then Prime Minister John Key made a commitment to halve our emissions by the year 2050, and we've taken the first steps towards that.

But in 2015 we, alongside almost all countries in the world, decided that the world should achieve net-zero greenhouse gas emissions by the second half of this century through the Paris Agreement.

Setting a new long-term target will be a clear signal of our commitment to the Paris Agreement. Many of New Zealand's largest businesses have already gone 'carbon neutral', and many others are working on it.

Now is the right time to set a long-term target of net zero emissions and put in place the institutions and the strategy to reach it. At its core, this is what the Zero Carbon Bill does.

With this challenge comes opportunity. Together we can build a more sustainable economy that ensures future New Zealanders can prosper.

I invite you to be part of the conversation.

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Executive Summary

The Government is committed to taking action to respond to climate change. We want to build a more sustainable economy that has lower impacts on the environment, while creating jobs and improving New Zealanders' lives.

Under the Paris Agreement almost every country, including New Zealand, decided that the world must reach 'net zero' emissions by the second half of the century. Net zero means we need to reduce emissions to a level where the total we emit is no greater than what we remove from the atmosphere. Nations around the world are already making changes and will continue to in the years and decades to come. Our challenge is to decide how we deliver our part in this global effort.

We are already experiencing the impacts of a changing climate. Our regions, businesses and communities have already seen costly damage and disruption. There are more frequent and severe extreme weather events, like flooding and droughts. Parts of our coastline are flooding from rising sea levels. We are losing biodiversity on land and in our oceans from rising temperatures¹. These impacts are likely to increase in scale over time.

The Zero Carbon Bill is an opportunity for New Zealand to define how we want to respond to this challenge. It can put a new target in legislation, create the institutions to help us get there, hold us to account, and to plan our response to the growing impacts of climate change. We want New Zealanders to help us decide the shape and form of the Bill.

Our role in addressing climate change

Our share of total global emissions is very small (0.17 per cent). This doesn't justify inaction. Small emitters like us together make up around 30 per cent of global emissions and our per capita emissions are high.

Taking ambitious action in New Zealand can help show global leadership and may ensure other countries continue to do so too. There are plenty of ways we can take action. We can increase renewable electricity generation, plant more trees, invest in new technologies, shift our cars and trucks to electric and invest in public transport where possible. We can also continue our world-leading research exploring how to reduce emissions on farms. Sharing our experience and innovation with other countries can help contribute to global efforts.

Why we should start now

Under the Paris Agreement we have committed to reduce emissions to 11 per cent below 1990 levels by 2030, and to set increasingly more ambitious targets. Our current long-term goal is to reduce emissions to 50 per cent below 1990 levels by 2050. Under the Zero Carbon Bill we propose increasing the 2050 target to bring it further in line with the global ambition set out in the Paris Agreement.

The sooner we start reducing emissions, the less disruptive the transition will be. The OECD signals that there is a cost to not taking action. We are already facing higher costs to respond to climate change. Each year, due to damage caused by extreme weather and rising seas, it costs more to repair our roads and railways and to keep other vital infrastructure running. The longer we wait to transition to a low emissions and climate resilient future, the harder and more costly it is likely to be.

¹ Reference to come

We can't know for sure how the future will unfold. Modelling out to 2050 shows the economy is expected to grow, but it also shows there will be a cost to reducing emissions. For example, based on mid-range results, if we make ambitious efforts to become a net zero emissions economy, GDP could grow by 1.9% every year. This is compared to growing at 2.2% every year, assuming we don't take measures to reduce emissions. But these economic models do not reflect the costs that New Zealand and the world would face by doing nothing.

Other benefits from the transition

There are substantial health and environmental benefits from moving towards a low-emissions economy that is resilient to climate change. The air we breathe will be cleaner. More people catching buses and trains more often would reduce congestion in our cities. Better insulation for energy efficiency reduces heating bills and leads to health cost savings and a higher quality of life as houses are warmer, drier and healthier than they are now.

More forestry, in the right places, could improve the health of our birds, fish and plants. It could also improve water quality in our rivers and lakes and prevent erosion. Stronger climate action can also drive faster innovation as people find new solutions to old problems.

What the transition could look like

The choices we make will mean we need to change some of the ways we live our lives over the next three decades. We may need to significantly reduce agricultural emissions, shift away from fossil fuels, change how we use land - and plant a lot more trees to soak up carbon dioxide. Tree planting buys us time until we can reduce emissions in other areas.

Some sectors and industries will decline and new sectors will emerge, creating new jobs. Businesses with high emissions will face challenges if they don't reduce them. Emission intensive sectors will also face challenges, and the make-up of the workforce in some regions could change as a result.

Communities on the coast and floodplains of major rivers will be significantly impacted by climate change. Much of the Māori economy is involved in natural resource management including forestry, agriculture and fisheries. There will be opportunities for the Māori economy through the transition.

A planned transition over time gives us the best chance of minimising the impact on our jobs and livelihoods so it is just and fair for all New Zealand communities and regions. Incorporating Te Ao Māori and kaitiakitanga in our approach, as well as working with industry, across the agriculture, forestry, energy and transport sectors will help to get the transition right.

Other countries will also making changes to their economies at the same time, and countries will be able to cooperate and learn from each other.

What drives a smooth transition?

We already have some climate change policies in place and we have made some progress on meeting our international commitments. But to get to a low-emissions economy that is resilient to climate change we will need to have stable and credible climate policies that include: emissions pricing; laws and institutions; regulations and policies; and the right innovation and investment settings.

The Zero Carbon Bill has been developed based on recommendations of the previous and current Parliamentary Commissioners for the Environment, the Productivity Commission, and is modelled on approaches taken in other jurisdictions, particularly the United Kingdom.

The Zero Carbon Bill aims to set up the laws and institutions we will need. The Bill could:

- set targets for our emissions, and the stepping stones to reach these

- set up the institutions to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a process to understand risks and to plan for adapting to climate change.

These core building blocks will give certainty to New Zealanders that no matter what Government is in power there will be a long-term approach to climate change that endures political cycles. Independent institutions will keep governments well-advised, up-to-date on the evidence, and hold politicians accountable. This Bill allows future governments to decide on the right mix of policies they believe will keep moving us towards the target.

The Bill will be guided by the three fundamental pillars of the Government's objectives for climate change action:

- A sustainable economy
- Global and local leadership
- Creating a just and inclusive society.

What the Zero Carbon Bill could do

This section outlines what the Zero Carbon Bill could cover. Your feedback will help determine the targets we set and how we achieve them. More detail is set out in the full discussion document.

A 2050 emissions reduction target

We seek your views on whether the Zero Carbon Bill should set in law a new emissions reduction target for 2050. This would set the direction for the transition by giving New Zealand a clear goal we can all work towards.

A new 2050 target would provide more certainty for business and communities on the change we need to make, and position us well to benefit from emerging low-emissions technology and innovations. Based on our research and analysis we are proposing three possible options that build on the current target of reducing all greenhouse gas emissions by 50 percent below 1990 levels by 2050.

- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050 (but not other gases like methane or nitrous oxide).
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce emissions of long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising emissions of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

Each target has different implications for our climate and economy. Economic modelling, although subject to uncertainties, suggests there will be changes to our economy. These include significant increases in new forest planting and emissions reductions in transport and energy, as well as changes in how we use our land.

A 2050 target could also be set in law later. The Parliamentary Commissioner for the Environment suggests we could include a more general statement of ambition in the Zero Carbon Bill. For example, the Bill could include an overarching target to reach 'net zero' in the second half of the

century (in line with the Paris Agreement) and task a new Climate Change Commission (described below) to advise its form and level later.

There is also an option to use some emission reductions from overseas with high environmental integrity to help meet our targets. This could be a cheaper option in the short term but would mean less investment in upgrading New Zealand's economy to reduce emissions.

The emissions budgeting system

We will need stepping stones through to 2050. If we set a new 2050 target, the Zero Carbon Bill would also need to set up 'emissions budgets'. These budgets, covering how many emissions we can emit in a given time period would chart our progress.

Some important considerations in setting budgets include:

- the duration of each budget
- how far in advance we set them
- whether they can be revised
- what happens if they are not met.

It is important to get the balance right between improving predictability, remaining flexible to changes in the future and not imposing excessive administration costs.

We propose that budgets be set 10-15 years in advance, with each budget setting the amount we can emit over a five-year period. The Climate Change Commission would recommend what the level of the budget should be.

The Government would need to respond with plans and policies to meet each budget. This would mean working closely with the right people to make informed decisions about the direction New Zealand is taking. We would also ensure alignment with our emissions reduction commitments under the Paris Agreement.

We could build in flexibility. Targets and budgets could be revised to respond to significant changes in the economy and technology as well as account for what the rest of the world is doing.

An independent Climate Change Commission

The Zero Carbon Bill could also establish a new Climate Change Commission (the Commission) to provide independent, expert advice and support New Zealanders to hold successive governments to account for progress. The Commission could have an advisory role, or it could have decision-making powers.

We propose a core set of advisory and monitoring functions for the Commission, with a requirement for Government to publicly respond to the Commission's advice. We have a choice to make around the specific role the Commission could have with the New Zealand Emissions Trading Scheme. To ensure that the Commission is credible, respected, and an enduring institution, we seek your views on its institutional design.

In the meantime, we need to keep moving. An Interim Climate Change Committee has been set up to work on how we manage agricultural emissions and how we get to 100 per cent renewable electricity. The Interim Climate Change Committee will be leading on these issues outside of this consultation process.

Adapting to the impacts of climate change

Even if we can reduce greenhouse gases globally, we will need to adapt to the impacts of climate change that are already locked in. The Zero Carbon Bill could help decision-makers manage their climate change risks in a systematic way. We could require the Government to develop a National Adaptation Plan that prioritises actions based on a regular risk assessment. We also want to explore whether a targeted Adaptation Reporting Power might be set up. This could see some organisations share information on their exposure to climate change risks.

Your feedback will help shape the Zero Carbon Bill

We welcome your feedback on the proposals contained in this document, which will help inform further policy development, and shape what will become the Zero Carbon Bill. Later this year the Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS and help us implement the Paris Agreement.

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PART ONE: Introduction

» He mokopuna he tupuna. «

SUMMARY

Our climate is changing, and our economy needs to respond as part of a global transition to a net zero emissions, climate-resilient future. This will require a fundamental economic shift in New Zealand.

As we have seen from transitions in the past, such as the industrial and digital revolutions, economic transitions can create challenges – but also opportunities. Taking early action in the right areas is likely to avoid the need for more abrupt action later.

As New Zealanders, we need to make decisions about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures. What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future. This is a critical conversation to have now, and we invite you to be part of it.

Background

What is climate change?

The Earth's atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small amount of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze. But increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

Over the past 200 years there has been a big increase in human-generated greenhouse gases from activities like burning fossil fuels, farming, and cutting down forests.² The global climate is changing rapidly compared to natural variations in the past. The world has already warmed about 1 degree Celsius since 1900, and the increase in greenhouse gases is the main reason for this. The temperature will continue to rise and if we don't curb emissions, the risks of harmful impacts on people and ecosystems will increase.

² Trees act as a 'carbon sink'—a natural storage area—for carbon dioxide by absorbing or 'sequestering' it over time through the process of photosynthesis. This means that when areas are deforested, the carbon dioxide stored in those trees is released into the atmosphere.

The impact of climate change so far

We are already feeling the impacts from a changing climate. In the last 100 years seas have risen around 14-22cm in New Zealand ports. More recently, our regions, businesses and communities have suffered costly damage and disruption from coastal erosion, more frequent and severe weather events (flooding, droughts and wildfires) and damage to infrastructure and assets. This includes damage to sites of significance to Māori. Many Māori communities have ancestral ties with coastal areas with cultural heritage - marae, wāhi tapu, and mahinga kai rohe.

The costs we face are continuing to rise. As an example, in the past 10 years the cost of weather events to our transport network have risen from about \$20 million per year to over \$90 million per year.³

The Paris Agreement

New Zealand signed the Paris Agreement two years ago. It sets out the international response to the threat of climate change. It has been a game-changer - the world is now committed to a low emissions future.

The Paris Agreement says the world will:

- keep the increase in global average temperature to well below 2°C above pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5°C, with an aim to reach peaking of global greenhouse gas emissions as soon as possible and to reach net-zero emissions by the second half of the century
- enhance the ability of countries to adapt and reduce vulnerability to the adverse impacts of climate change
- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient economies.

Our first target under the Paris Agreement is to reduce greenhouse gas emissions to 30 percent below 2005 levels by 2030 (11 percent below 1990 levels). The Paris Agreement sets out developed countries' role in the transition and says they should "continue taking the lead by undertaking economy-wide, absolute emission reduction targets". More detailed rules are due to be finalised this year.

What do our emissions look like?

A large part of our economy is based on primary industries. Agriculture makes up nearly half of all emissions in New Zealand (

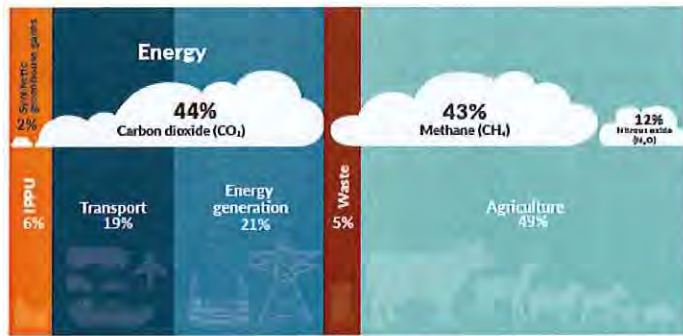
³ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

Figure 1). Its share of the national total is, on average, four times larger than our OECD peers.

Most of New Zealand's electricity (about 80%) is currently generated from renewable sources like wind and hydro. The Government has committed to making electricity 100% renewable by 2035. We also have a sizeable forestry sector which currently offsets about a third of our gross emissions.

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Figure 1: Emissions profile of New Zealand



Source: New Zealand Greenhouse Gas Inventory 1990-2016. Ministry for the Environment.

Note: Percentage may not add up to 100% as they are rounded to the nearest percent.

For more information on New Zealand's emissions profile, visit our website and look at the [emissions inventory](#) and [emissions tracker](#).

Where are we starting from

We are not starting from scratch. The Zero Carbon Bill will build on the progress New Zealand has already made on our international commitments and our Emissions Trading Scheme. It also builds on the steps many businesses and sectors have taken to reduce emissions and choices people are already making on how they get around and the products they buy.

Our towns and cities are also contributing. Regional and territorial authorities have a good understanding of how to adapt to climate change and some are putting in place plans for creating low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. Many businesses have their own emissions reductions plans in place and are taking innovative steps to achieving their emissions reduction goals.

Why New Zealand needs to act

We have committed to playing a part in the global efforts. The transition we have begun will need to be deep and broad. We have choices around how far and how fast we go. For each choice we make, there will be opportunities and challenges.

If we act now, our actions could:

- reduce the potential for sudden, drastic economic shocks
- get the most of the wider benefits in health and across the environment (eg, cleaner water and air)
- avoid further damage caused by a changing climate (assuming the world continues to act in the same way)
- drive faster innovation and productivity improvements
- keep our small, export-led economy competitive
- meet growing consumer demand for low emissions products and services
- reduce the risks of sunk costs in infrastructure and other large-scale assets
- build on our areas of strength – renewable electricity, land available for forestry, research and development

- benefit from mātauranga Māori (traditional knowledge) and Te Ao Māori (the Māori world view) through our Treaty partnership.

Some of the challenges we will face include:

- there's a chance that GDP will grow less quickly
- significant changes to our energy and transport sectors, and probably agriculture too
- some industries will experience decline while others emerge, with implications for some jobs and regions
- vulnerable communities could be harder hit
- moving too early could affect the competitiveness of our trade exposed businesses. This risks 'emissions leakage'⁴

We have used independent, expert modelling to help us think about the implications of the different economic choices we have. While modelling gives us a reasonable view through to 2030, beyond that the modelling is stretched to its limits. Overall it shows us that the economy will grow less quickly than it otherwise would have without climate change action.

It also tells us that some sectors and therefore some communities and regions will be affected more than others.

The Government is committed to a just and inclusive transition. It will need to work closely with workers, businesses, investors, Māori and regional partners to provide support to manage adjustments in communities, for example, training and upskilling people into new low emissions jobs – this is why we need to provide the laws and institutions to support the transition.

Change isn't new. Our agriculture sector has responded to constant land use and other change over the past 70 years, and as a result, we are considered leading edge, globally. The internet and digital economy have also transformed many sectors and how productive we can be. Preparing for the change, and investing in our progress will make the transition less disruptive.

Setting up for the transition

A low-emissions economy needs stable and credible climate policies that include: emissions pricing, laws and institutions; regulations and policies; and the right innovation and investment settings.

Our first step is to put the right laws and institutions in place. The Parliamentary Commissioner for the Environment and the Productivity Commission see this as a pivotal part to moving to a low emissions economy – the Government agrees. It's a path that a number of countries have now taken.

The proposals in the Zero Carbon Bill aim to set the country's long term commitment and provide transparency about what future policies we intend to use to achieve this. The Bill would:

- set targets in legislation for our emissions and the stepping stones to reach these
- set up the institutional arrangements to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a process to understand risks and plan for adapting to climate change.

⁴ Emissions leakage is when there is relocation of production to countries with less stringent climate change policies.

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and help people hold politicians accountable.

This work will be guided by the following objectives:

- **Sustainable and productive economy:** Continuing to grow and diversify the economy, while limiting greenhouse gas emissions and responding to the impacts of climate change.
- **Global and local leadership:** Leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the key way for New Zealand to influence the global climate action response
- **Creating a just and inclusive society:** Managing the pace of the transition, and supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

Other work needed to transition

A lot of other work will be needed to support these core arrangements. Although we haven't made significant progress in bending the curve on our emissions, the work to transition is already underway. We have regulations and policies in place and we are moving capital to low emissions investments. Some specific initiatives include:

- strengthening and improving the New Zealand Emissions Trading Scheme (NZ ETS)
- developing a land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees
- establishing a Green Investment Fund to stimulate new investment in low-emissions industries.
- continuing to develop practical solutions in the agriculture sector where New Zealand is already a world leader, such as animal breeding and vaccines to reduce methane.

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MĀORI AND IWI LEADERSHIP IN THE TRANSITION

'Toitū te Marae o Tāne, Toitū te Marae o Tangaroa, Toitū te Iwi - When land and water are sustained, the people will prosper'

There are opportunities for iwi and Māori-owned businesses to show leadership in the transition. Te Ao Māori and kaitiakitanga underpins leadership that can drive positive change. There will be opportunities for the Māori economy through the transition; however, there will also be challenges. For example, Te Ture Whenua Māori Act 1993 has implications for how that land can be used and is governed.^[1]

As an example of a leading iwi-run farm, Ngāi Tahu Farming applies advanced best-practice land and water use across the nearly 100,000 ha of dairy, sheep and beef farms and forestry land it manages in Te Waipounamu (South Island). It's focusing on reducing greenhouse gas emissions through collaborative research and on-farm practices including tree planting to create carbon sinks. It has been able to and reduce stock while improving productivity. Ngāi Tahu Farming's General Manager Shane Kelly believes the agriculture sector will play an important part in New Zealand's shift to a net zero emissions economy, advocating a collaborative and staged process. Farmers are looking for direction and leadership, he says. "We all want to look after our environment and we need to work collaboratively as a nation. It's a huge opportunity, the question is, how do we make this work together as a nation?"

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^[1] Much of the 1.4 million hectares of Māori land (99.5% of which is freehold) may be difficult to alter or eliminate due to three unique characteristics. It is predominantly small blocks with only a small proportion of arable land. It is subject to cultural importance to current and future generations. It has individual, yet multiple ownership.

PART TWO: Proposals

SUMMARY

The Zero Carbon Bill could set a new long-term emissions reductions target.

There are three key considerations in exploring setting a new target: The Paris Agreement, the science of short-lived and long-lived gases and the potential economic impacts of different targets.

There are four target options we explore:

- **Status quo:** The current target of 50% reduction below 1990 levels by 2050
- **Net Zero Carbon Dioxide:** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases:** Reduce emissions of long-lived gases to net zero by 2050, while also stabilising emissions of short-lived gases
- **Net Zero Emissions:** Net zero emissions across all greenhouse gases.

This section outlines the possible implications of different targets; whether we should use emission reductions from overseas; the legislative options we have for setting a new target; the potential role of a new Climate Change Commission; and how we could include flexibility to meet our targets over time.

We are seeking your views on:

- *What target we should set*
- *How New Zealand should meet its emissions reduction targets*
- *Whether or not the target should be set in primary legislation*
- *Whether the target should be able to change*

2050 Target

We propose introducing a new 2050 climate change target into the Zero Carbon Bill. This would give the target more prominence and discourage changes of ambition in response to short-term considerations.

Setting a new target would:

- provide an enduring, long-term signal to businesses, consumers, and New Zealanders
- provide alignment to the Paris Agreement's global goal of reaching net zero emissions by the second half of the century
- help to inform our successive Nationally Determined Contributions (NDCs)
- signal to the world that New Zealand is playing its part in the global effort.

Setting targets is not new. New Zealand has already made commitments to reduce emissions to:

- 5% below 1990 levels by 2020
- 11% below 1990 levels by 2030 (or 30% below 2005 levels by 2030)
- 50% below 1990 levels by 2050.

Regardless of what decision is taken about a new 2050 target, the Government is still fully committed to implementing our Paris Agreement commitments, and focussed on delivering our existing Nationally Determined Contribution by 2030.⁵

All of the target options we consider put New Zealand on a pathway to net zero emissions in the second half of this century. The difference between each option is the speed we would reach net zero emissions. The most stringent target option we have considered, *Net Zero Emissions*, would see us reach net zero emissions in 2050, whereas other options would put us on track to getting there in later years.

Setting a new target

There are three key considerations when setting a new target. The Paris Agreement, the science of short-lived and long-lived gases and the economic impacts of different target options.

1. The Paris Agreement

The Paris Agreement sets the gauge for international expectations around our efforts to reduce emissions over the long-term. The headline emissions reduction objectives from Paris are:

- *“holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” - Article 2.1 (a)*
- *“In order to achieve the long-term temperature goal set out in Article 2 [...] to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century” – Article 4.1 (ie, achieving ‘net zero’ emissions)*

Any domestic action needs to be consistent with our commitment to the Paris Agreement goals. By honouring our commitments, New Zealand is better placed to encourage other countries to keep to theirs, including countries with much greater emissions than our own.

2. The science of different gases

Any target we set needs to be informed by the best available climate change science and mātauranga Māori. Nearly half of New Zealand’s greenhouse gas emissions come from agriculture, which means we need to pay particular attention to the scientific impact of short-lived gases like methane, which dominate agriculture’s emissions.

Short-lived gases like methane decay relatively rapidly in the atmosphere. They last for decades rather than centuries. This means, global temperatures can be stabilised without necessarily reducing emissions of these gases to zero.

Long-lived gases like carbon dioxide, need to either reduce entirely to zero, or at least to the point where emissions can be balanced out by an equal amount of emissions, for example by new forests.

There are two scenarios where New Zealand’s domestic emissions impact on global temperatures could be defined as zero:

- Reducing long-lived greenhouse gas emissions to zero and stabilising our short-lived gases, would mean our domestic emissions wouldn’t contribute to any further increase in global temperatures.
- Reducing all greenhouse gas emissions to net zero would mean our domestic emissions would have no further impact on the climate.

⁵ Nationally Determined Contributions are the efforts each country put forward under the Paris Agreement.

Hypothetically, if both scenarios were applied worldwide global temperatures would stabilise, but would stabilise at a lower temperature under the second scenario.

3. Economic outcomes

The changes required to meet these targets are likely to involve substantial changes to the way New Zealanders work, travel, and consume. This means it is important for us to try and understand the range of potential economic outcomes. Further information is included below.

Options for a new climate change target for 2050

This section examines four potential outcomes from different 2050 target options. These are:

- **Status quo.** This is the current gazetted target of a 50% reduction below 1990 levels by 2050
- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050 (but not other gases like methane or nitrous oxide).
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce emissions of long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising emissions of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

WHAT DOES 'NET' MEAN?

The term 'net emissions' is normally used to describe the emissions from a country when the impact of land use *and* forestry is included in the analysis:

- **Gross emissions.** These are greenhouse gases from the parts of the economy that we traditionally think about as emitters – cars, factories and livestock.
- **Net emissions.** These include gross emissions as well as the impact of land use and forestry. Describing this as 'net emissions' makes sense because the land use and forestry sector can often remove more carbon dioxide from the atmosphere than it emits and these removals are offset against the emissions that occur elsewhere in the economy.

There are different ways to account for forests against our targets. Options include accounting for new forests only, as in our current target accounting, or including all of our forests, as reported in our Greenhouse Gas Inventory.

Table 1 below compares the high-level economic and emission outcomes of these four options.

Table 1: Economic and emission outcomes of the options for the 2050 target

TARGETS	Status Quo	Net Zero Carbon	Net Zero Long-Lived Gases and Stabilised Short-Lived Gases	Net Zero Emissions
EMISSIONS	50 percent reduction (all gases) on 1990 levels by 2050	Net zero carbon dioxide emissions by 2050	Net zero long-lived gases by 2050, while also stabilising flow rate of short-lived gases	Net zero emissions (all gases) by 2050
LAND SECTOR	<ul style="list-style-type: none"> Moderate land use change Expanded forestry estate 	<ul style="list-style-type: none"> Land-use outcomes more uncertain because targets not prescriptive for methane Expanded forestry estate needed to offset CO₂/N₂O Main driver of land-use change will be the level of ambition for methane reductions 		<ul style="list-style-type: none"> Major land use change needed to reduce or offset methane and CO₂/N₂O Up to 10 percent of New Zealand given over to new forest planting
ENERGY/ TRANSPORT	<ul style="list-style-type: none"> High rates of EV adoption (60-80% in 2050) Some reductions from industrial heat 	<ul style="list-style-type: none"> Major changes in energy and transport sectors EVs likely to make up to 95 percent of the light vehicle fleet in 2050 Industrial heat switches from fossil fuel to electricity and biomass Any CO₂ emissions remaining in 2050 would need to be offset by new forest planting 		
TECHNOLOGY OPTIONS	Target allows trade-offs to be made between sectors and technologies as costs and availability change	Target is focussed on CO ₂ , with many of the technologies that we will need already available	Technologies needed for both long-lived and short-lived gas emissions reductions, with limited ability to make trade-offs between progress on both of them	The high target ambition means that most, if not all, current and future technology options for emissions reductions will need to be adopted

CASE STUDY: WHAT TARGETS HAVE BEEN SET ELSEWHERE

Other countries have set 2050 targets. It's important to consider these in light of each country's national circumstances and emissions profile.

The United Kingdom: The UK is legally committed to reducing GHGs by at least 80 percent by 2050 compared to 1990 levels.

The European Union: The EU has a target to reduce GHGs by at least 80 percent by 2050, relative to 1990 levels through domestic reductions alone and 80-95 percent with international emissions reductions.

Norway: Norway is legally committed to reducing GHG emissions to net zero by 2050. (Note: Norway's net is different to ours). Norway has a conditional aim to meet this target earlier, by 2030 – through EU emissions trading/purchasing international emissions reductions.

The opportunities and challenges of transition

To understand both the upsides and the challenges of the transition, we have carried out analysis and modelling to understand what might happen in order to meet different targets. Any modelling will have limitations. It relies on assumptions about the future, like how many trees we plant, and it can't accurately predict things like rapid changes in technology. Looking out to 2050 stretches economic modelling to its limits. Looking back both at changes in technology and the structure of our economy over the last three decades shows that a lot of change is possible.

The actual economic impacts we experience will depend on a number of critical factors, including: how technology and industries develop over time, how consumer preferences change and which policies are put in place to support the transition. Some industries will face competitiveness challenges, and we'll see jobs change. This is why we will ensure that it is a just transition.

Other countries will also be making changes to their economies over this time. There will be opportunities to cooperate and learn from each other. No country's economy will look the same in 2050 as it does today.

What the modelling has considered

We have used independent external experts to carry out a series of studies. Through the modelling, we've captured some of the uncertainties about the future by considering different scenarios. The models used are complex and so it's useful to understand – in broad terms – how they work.

Scenarios change based on: how many trees are planted in new forests – a key factor in the scenarios, rates of innovation and how the rest of the world acts.

When looking at the modelling results we need to keep in mind: our assumption that the transition is made within the domestic market only – with no use of international units; and the absence of transition policies. In reality, governments could decide to ease the transition for some industries, or support vulnerable communities so the transition is just. Not all impacts can be modelled. Notably, the opportunities detailed below

Table 2) aren't included in the assessment of economic challenges.

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Table 2: Summary of the economic opportunities and challenges

OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> • We could see: • Higher rates of innovation in sectors exposed to a higher emissions price, leading to an up-lift in productivity • New business opportunities in lower emissions sectors • Less time wasted in traffic congestion and improved health from switches to public and active transport • Health benefits from warmer and drier homes • If the rest of the world acts as well, reduced impact on our economy from climate change effects 	<ul style="list-style-type: none"> • We could face: • Slower rates of economic growth as a result of higher emissions prices and other transition policies • Competitiveness issues in trade-exposed emissions-intensive industries • Some emissions intensive production shifting overseas • Decline in output and jobs for higher emissions sectors • Slower rates of growth in household living standards

What the economic modelling tells us

We have assessed both the upside to transition, and modelled the overall impact of the different targets on New Zealand's economy, including on our industries, households, regions and the economy as a whole.

Estimating the size of the upsides

Our analysis has explored the opportunities for stronger climate policy to deliver wider positive effects. While opportunities are often more difficult to quantify than economic costs, we have carried out research which shows substantial wider benefits of transitioning to a low-emissions economy. These include cleaner air, health benefits, reduced congestion, cleaner water and improved biodiversity. For example:

- There would be benefits from public transport and walking and cycling through reduced congestion, safety, health and air quality. A 40% increase in walking and cycling would require \$630 million in infrastructure investment, but the returns would be large: over \$13 billion from now to 2050, mainly from reduced mortality – more exercise means better health.
- Healthier homes from better energy efficiency. For example, every dollar invested in home insulation can provide up to \$4 in health benefits from warmer, drier homes, or \$6 if there is a child or an elderly person living there.
- More forestry can mean benefits for biodiversity and water quality. The value would depend on where trees are planted, but could be worth \$5,600 per year per hectare.
- Faster innovation in emitting sectors – international evidence suggests a close link between strong climate policies and increased rates of innovation.
- Areas we are already world-leading in for research and development (eg agritech) could benefit from first mover advantage, new sectors may emerge, and new business opportunities could arise.
- If the rest of the world acts too, we could see a benefit from avoiding the economic and social damages of climate change on the New Zealand economy.

Whole of economy modelling

We have used two different models to look at how the economy responds to different targets. The two key studies are Vivid Economics (2018) and NZIER (2018). Different methods result in different findings.

The results reported below represent a mid-range across all the modelling information available. The figures could vary significantly in practice, for example if we don't plant enough trees or continue to innovate. The key findings are:

- the economy continues to grow but not as quickly, and the economic impacts could still be significant
- supporting lower income households will need to be part of our approach – otherwise the impacts on these households could be disproportionate
- Some sectors will be harder hit than others
- using a mid-range of results from the models, achieving Net Zero Emissions by 2050 would cause average GDP to grow less quickly – from 2.1% under our Status Quo target to 1.9% if we make ambitious efforts to become a net zero emissions economy.

The economy continues to grow but at a slower rate

Under any of the 2050 target options, our economy can continue to grow, just not as quickly as it might have done without any further climate action. However, growth is not assured unless we continue to innovate while substantially expanding our forest estate. Some households and some sectors are likely to face higher costs and more disruption than others. The Government is mindful of this and committed to a 'just transition' approach that supports affected households. Businesses unable to respond could be exposed to competitiveness challenges, and as a result, cease operating.

Meeting a new 2050 target while growing our economy is therefore achievable, but it will not come for free and it won't be without challenge.

Supporting lower income households

Modelling shows the impact of domestic climate action would be felt more strongly by lower income households, because a higher proportion of their spending is on emissions-intensive products, such as petrol. The Government has a number of tools it could choose to use to compensate affected households for higher costs, such as tax or welfare measures. The uneven distribution of costs across different households is an important part of the reason for taking a planned approach to ensure a just and fair transition.

Using the petrol cost example, the Government has signalled it will invest billions of dollars in alternatives to driving petrol cars. This means many people may find it cheaper and more convenient to use buses, trains, cycling and walking to work and to school. They may also switch to driving electric cars that have lower running costs.

Some sectors could be harder hit than others

The uneven impact of climate change action across sectors is a challenging problem particularly for those that have high emissions, compete in international markets, or have limited opportunities to reduce their emissions. Any action to shield particular sectors would mean other sectors would need to step up their efforts. Without government policy to re-direct these efforts, emissions-intensive sectors (for example, sheep and beef farming, dairy processing and petrochemical processing) are more affected than less emissions-intensive sectors (for example, retail services).

Land use decisions are likely to be among the most complex and substantial that we face because we would need to materially expand the forestry estate to meet any of the new target options. For the strongest target we have assessed, Net Zero Emissions, our modelling suggests that new forest planting could need to use as

much as 10% of New Zealand's land area.⁶ While some of this planting could occur on shrub or scrubland, a portion of this planting would need to be on land that is currently used for farming.

Getting to net zero emissions would see GDP grow less quickly

Table 3 is a summary of our modelling results for both economy-wide and household impacts under each of the different 2050 target options based on the NZIER modelling. It shows that the strongest target reported, Net Zero Emissions, requires the highest emissions price and therefore leads to the largest impact on GDP and households. For example, under this target, the economy grows by 1.9 percent each year on average rather than 2.1 percent under the Status Quo (the current target of 50% reduction below 1990 levels by 2050). In dollar terms this slower growth rate is reflected over the transition period as an average GDP of \$373 billion per year for Net Zero Emissions rather than \$381 billion for the Status Quo.

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⁶ Currently over 35% of New Zealand's land area is covered by forests. This amounts to 9.9 million hectares.

Table 3: Summary of economic modelling results under 2050 target options

Economic Impact - Annual averages - Compared to 'Do nothing' baseline ⁷ - Compared to Status Quo - Compared to today		Status quo OR Net Zero Carbon	Net Zero Long- Lived Gases & Stabilised Short- Lived Gases	Net Zero Emissions
ECONOMY- WIDE IMPACT	GDP growth rate⁹ (%)	2.1%	1.9%	1.9%
	<i>Absolute change compared to 'Do nothing' baseline</i>	↓0.2%	↓0.3%	↓0.3%
	<i>Absolute change compared to Status Quo</i>	N/A	↓0.1%	↓0.2%
	GDP¹⁰ (\$ billion)	\$381	\$374	\$373
	<i>Percentage change compared to 'Do nothing' baseline</i>	↓2.3%	↓4.0%	↓4.4%
	<i>Percentage change compared to Status Quo</i>	N/A	↓1.7%	↓2.1%
HOUSEHOLD IMPACT	Per household GNDI¹¹ (\$ thousand)	\$228	\$224	\$223
	<i>Percentage change compared to 'Do nothing' baseline</i>	↓2.3%	↓4.0%	↓4.3%
	<i>Percentage change compared to Status Quo</i>	N/A	↓1.7%	↓2.1%
	<i>Percentage change compared to 2018 GNDI</i>	↑21.8%	↑19.7%	↑19.3%
STRENGTH OF CLIMATE ACTION	Transition cost (‘emissions prices’)¹² (\$/tCO₂-e)	\$109	\$243	\$272
	<i>Absolute change compared to Status Quo</i>	N/A	↑\$134	↑\$163

⁷ The 'do nothing' baseline has been constructed by NZIER based on Treasury's economic projections and information on emissions provided by government agencies. This baseline's emissions projections are higher than those published in the most recent government projections, and so the model risks over-stating the emissions reductions needed to meet each target. The most recent government emissions projections were not finalised in time to feed into this modelling, but will provide the basis for continued modelling of the transition to low emissions.

⁸ For the modelling it is assumed that the Status Quo target and the Net Zero Carbon target have the same economic impact. This is based on the assumption that both targets result in broadly similar emissions reduction by 2050 as measured by GWP 100.

⁹ GDP growth rate reflects the annual average GDP growth rate over the period 2018 to 2050.

¹⁰ GDP reflects gross domestic product as an annual average over the period 2018 to 2050. Note GDP in 2018 is approximately \$269 billion.

¹¹ Per household GNDI reflects the gross national disposable income divided by number of households as an annual average over the period 2018 to 2050. Note per household GNDI in 2018 is \$187 thousand. Note also that GNDI is a measure of the total income of New Zealand residents from domestic production and from net income flows with the world.

¹² Emissions prices are annual averages over the period 2018 to 2050. Note emissions prices do not reflect the price of New Zealand Units in the New Zealand emissions trading scheme that industry might face.

There's considerable uncertainty if we don't plant enough trees or innovate fast enough

The modelling ranges for each 2050 target option are wide. This is because the results depend on a range of assumptions - especially the rates of innovation in energy, transport and agriculture, and trees planted in response to climate action.

Because of the central role that new forest planting is likely to play in the transition, the economic costs of meeting these targets would increase rapidly if we failed to plant enough trees. On the other hand, the modelling could over-estimate the actual economic impacts if unforeseen technological advances meant that the transition was less challenging.

As an example of the type of ranges that could occur, the modelling estimates that to reach net zero emissions, across the whole transition period average GDP growth could be higher than 1.9 percent reported in the mid-range, but also could be as low as 1.5 percent if innovation occurred only in the energy and not the agriculture sector¹³.

An economic growth rate of 1.5 percent over the transition period would result in an average GDP of \$352 billion per year, which is approximately \$29 billion per year less than the Status Quo target. For more details refer to the further economic information [Mfe website once consultation underway].

WHAT DOES STRONG CLIMATE ACTION MEAN FOR ME IN TERMS OF COSTS?

A transition to a low-emissions economy will require strong climate action. This creates transition costs for businesses and New Zealanders. These costs can be represented in terms of emissions prices. There is huge uncertainty about how much emissions prices would need to increase to reach a low-emissions economy, but in 2050 these prices could range between \$157 and \$652 per tonne of carbon dioxide equivalent (CO₂e). These emissions prices reported are the full cost of transitional policies and not the price industry will face. For example, if Government invests in public transport the prices industry face could decrease.

Businesses could pass on all or part of the transition costs they face through the prices they charge households. For example, a litre of petrol produces 2.3 kilograms of CO₂. This means the price of a litre of petrol at the pump could increase by about 23 cents for every \$100 per tonne of CO₂e. This increase in petrol prices could result in some households deciding to replace their petrol car with an electric vehicle, which would cost less to run.

It is important to note that many of the economic effects of the transition to 2050 will be felt slowly over time. The Government wants to plan well, to avoid unexpected shocks.

¹³ Examples of the type of innovation that is assumed to occur in the energy sector include increasing electric vehicle uptake in the light vehicle fleet to 95 percent by 2050, and a doubling of the historic growth rate in energy efficiency.

Using emission reductions from overseas

First and foremost, the Government is committed to ambitious climate change action at home and transitioning the New Zealand economy to net zero emissions over the coming decades. This is consistent with the Paris Agreement.

Depending on how far and how fast we decide to transition, we may require technology that doesn't become available or is not cost effective to purchase until nearer 2050.

The Paris Agreement recognises that countries may choose to cooperate to meet their climate change commitments. Having the option to purchase emissions reductions from overseas may provide us with some flexibility in meeting targets¹⁴. It might allow us to meet ambitious climate change targets at a reduced cost.

This could be a cheaper option in the short term. However, it could mean less investment in upgrading New Zealand's economy to reduce emissions.

International carbon markets

We are seeking your views on the role that international emission reductions could play in helping New Zealand to meet its climate change targets. We would need to evaluate the relative cost of the emission reductions available overseas and those available in New Zealand. If international carbon markets are used in the future, this type of cooperation would need to satisfy a number of criteria. For example, the government would want to be satisfied that:

1. the credits/units are genuine and have environmental integrity i.e. the emission reductions are real
2. we will maintain substantive domestic progress towards our transition to our chosen emissions reduction target
3. it makes economic sense
4. we can do it in a way that maintains a steadily rising domestic carbon price, so that incentives stay in place for domestic reduction options, like forestry.

Under the Kyoto Protocol, international carbon markets were problematic. There was an oversupply of cheap units, as well as issues with the environmental integrity of some. There was also no cap on the amount of international units that could be surrendered by participants in the NZ Emissions Trading Scheme (the NZ ETS). Later this year we will be consulting on changes to the NZ ETS which help to safeguard its integrity, if international carbon markets are used in the future.

The Government is involved in a number of international efforts to ensure the environmental integrity of international carbon markets in the future. This includes negotiations through the UNFCCC, providing leadership to establish the 'Ministerial Declaration on Carbon Markets' and a range of other initiatives.

How we set the target

Legislative options available for setting a 2050 target

We want to know your views on whether the new 2050 target should be defined within the Zero Carbon Bill. We have two possible options:

- Option 1: setting the target in primary legislation (ie in the Zero Carbon Bill)

¹⁴ These could be referred to as "carbon credits" or "international units".

- Option 2: setting the target in legislative instruments (eg, the CCRA enables targets to be set in regulations or gazette notice as per our current 2050 target).

Setting the target in the Zero Carbon Bill would put the target in primary legislation - this would be the strongest option available. This option would require a framework around it to support its delivery.

Setting a target using option 2 through a legislative instrument would mean any future Minister for Climate Change and successive governments could change the target without parliamentary and public scrutiny. This approach would provide future governments with more flexibility to adapt to changing circumstances.

To give New Zealand's new 2050 target more prominence, we propose it is set in primary legislation. This would play an important role in:

- signalling Parliament's long-term commitment to reducing emissions and providing clarity to New Zealanders about its policy objectives
- indicating the elevated priority level of the 2050 target (in relation to other government considerations)
- discouraging changes of ambition in response to short-term considerations.

A potential role for the Climate Change Commission

We are seeking your views on the role a new Climate Change Commission could have in setting the 2050 target. The Parliamentary Commissioner for the Environment has suggested that the target could be set in a two-stage process.

First, the Government could set a more general statement of ambition in the Bill, in line with the collective global ambition set out in the Paris Agreement. Then, the Climate Change Commission could advise, within a defined timeframe, on the specific target consistent with the statement of ambition.

The advantage of a less specific target in the Zero Carbon Bill itself, could both allow more time for a decision about the target to be made, as well as potentially providing more flexibility on future emissions budgets.

A 2050 target could change over time

We are seeking your views on whether the Bill should allow the target to be revised. This could be in response to significant changes to the economy, our understanding of the science, the technology available or to account for what the rest of the world is doing.

Being able to review the target could mean we can adjust to unforeseen and significant events under some pre-determined conditions. The downside of being able to review the target is that it might provide less certainty about what is expected from different sectors. Legislation can provide a mechanism to revisit the target. This should maintain Government's commitment to the long term goal, while offering a process for transparent and well-signalled review.

The proposed Climate Change Commission could have a role in advising the Government on revisions to the target. Please see Chapter on the Climate Change Commission for more detail.

QUESTIONS

1. Should a 2050 emissions reduction target be set in primary legislation under the Zero Carbon Bill?

Pick one:

- Yes
- No

[Optional comment box]

2. What process should the Government use to set a new emissions reduction target in legislation?

Pick one:

- The Government sets a 2050 target in legislation now
- Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.

[Optional comment box]

3. If the Government sets a 2050 target now, which is the best target for New Zealand?

Pick one:

- **Status quo.** Current gazetted target of a 50% reduction below 1990 levels by 2050
- **Net Zero Carbon Dioxide.** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases.** Long-lived gases to net zero by 2050, while also stabilising short-lived gases
- **Net Zero Emissions.** Net zero emissions across all greenhouse gases.

[Optional comment box]

4. How should New Zealand meet its emissions reduction targets?

Pick one:

- Domestic emissions reductions only (including from new forest planting)
- Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas (international carbon units) that have strong environmental safeguards.

[Optional comment box]

5. Should the Bill allow the target to be revised if circumstances change?

Pick one:

- Yes
- No

[Optional comment box]

Emissions Budgets

SUMMARY

The Zero Carbon Bill could set up the emissions budgeting system.

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

- An 'emission budget' is a quantity of emissions that can be emitted over a period of time.
- Emissions budgets could be set 10-15 years in advance, with each budget specifying emissions for a 5 year period.
- Future budgets could be revised to allow for changes in the economy and technology
- When setting budgets a range of considerations would need to be made, which are detailed in this chapter

We are seeking your views on:

- *Timeframes over which budgets should be set*
- *Whether these budgets should be able to be reviewed*
- *Whether you agree with the list of considerations that need to be made when setting budgets that is described in this chapter*

Setting emissions budgets to create a pathway

If we set a target to reduce emissions, we will need to also set out a pathway to get there. Emissions budgets are a necessary tool to set out the shorter-term steps that need to be taken to reach our 2050 target.

Emissions budgets describe a quantity of emissions allowed to be emitted over a defined period (e.g. five years). They also set a medium-term path for emission reductions (e.g. 15 years).

Emissions budgets would inform a wide range of policy decisions, including the allocation of units within the NZ Emissions Trading Scheme. This will help increase predictability for businesses and New Zealanders about what is needed over a shorter-term horizon.

Emissions budgets are a similar instrument to what we have used to meet our previous international targets, such as under the Kyoto Protocol. Under the Kyoto Protocol New Zealand had a specific budget of allowable emissions over the 2008-12 period. We will also use an emissions budget under our Nationally Determined Contributions for the period 2021-30. Having emissions budgets in the Zero Carbon Bill would be equivalent to using these same mechanisms domestically.

Emissions budgets are a necessary part of the Zero Carbon Bill

The Government thinks that setting emissions budgets is necessary to the overall design of the Zero Carbon Bill. Emissions budgets provide a good balance between signalling the emission reduction path far enough into the future, while also allowing flexibility to deal with changing circumstances.

Allowing some flexibility in the path we take to reduce emissions is essential to cope with changes such as much higher (or lower) costs for reducing emissions than we anticipate. The Government does not

consider that other options (such as setting a fixed, straight line reduction pathway in legislation) provide enough flexibility to adjust to changes in our economy, to technology and science.

Design choices for emissions budgets

Emissions budgets require some detailed design choices. These include how far in advance emissions budgets could be set, the duration of each budget and whether and how they can be revised, and the considerations that need to be made in setting them.

Setting emissions budgets into the future

There are several key design choices to consider for emissions budgets. The first is the duration of each budget, and then how far into the future each budget is set. The third is whether or not they should be able to be revised.

Duration of each budget

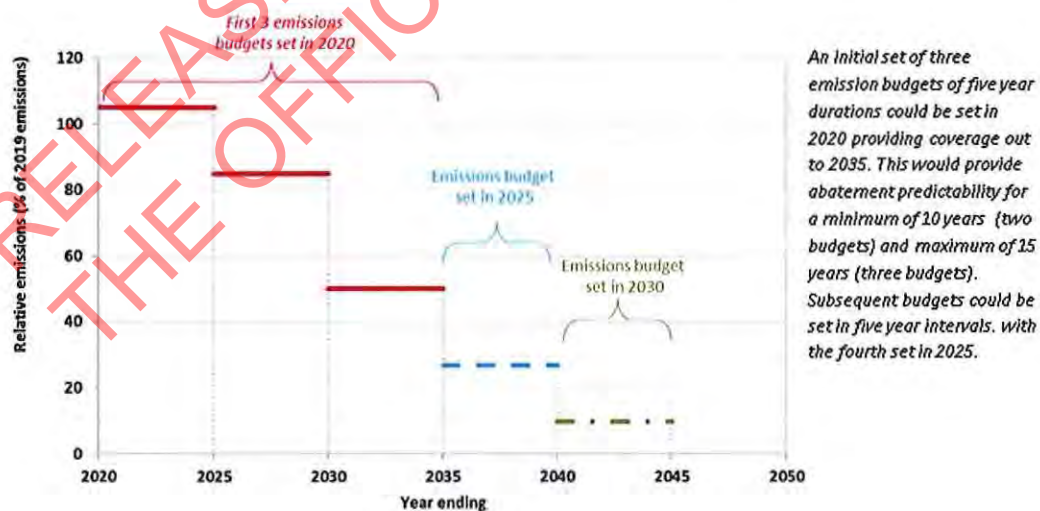
Too short a period for each emissions budget provides less predictability for businesses and communities. Too long a period requires decisions to be made today on very uncertain information. To determine the right length of an emissions budget, the main trade-off to consider is the flexibility of more frequent budget-setting processes versus the additional administrative cost of running the process.

The Parliamentary Commissioner for the Environment recently recommended New Zealand set a six yearly budget with a three year review of the policies implemented by the Government. This is designed to line up with our electoral cycle. However, we propose to set the duration of each budget every five years because it would have lower administrative costs and align with our Nationally Determined Contributions under the Paris Agreement.

How far into the future budgets are set

We propose that three emissions budgets of five years each be in place at any given time. This would mean we have a minimum 'look-ahead' timeframe of between 10 and 15 years. We think this is a good balance between improving predictability and remaining flexible to changes in the future. These timeframes may help to depoliticise the budget-setting process as the Government of the day would not be able to set or influence the budget for their own political term.

Figure 2: Possible approach to emissions budgets (three five-year budgets)



Revising emissions budgets

We seek your views on whether the Government should be able to alter the last emissions budget (i.e. the budget that is the furthest into the future). The Parliamentary Commissioner for the Environment suggests that each incoming Government should have the option to review the third budget in the sequence.

The advantage of this approach is that each Government would have a say in setting future emissions budgets. However, it could also make future emissions budgets less predictable for New Zealand businesses.

We would like to hear your views on the proposed design features of emissions budgets, including the proposals from the Parliamentary Commissioner for the Environment.

We also welcome your views on whether the second emissions budget in the sequence should be able to be reviewed under exceptional circumstances (for example following a natural disaster) and adjusted within a specified range.

What issues to consider when setting emissions budgets

We are seeking your views on what the Government and the Climate Change Commission should take into account when advising on, and setting emissions budgets. This includes important factors such as economic and social circumstances. These considerations aim to help make the process robust and balanced. Detail on the proposed considerations is set out in the following chapter on the Climate Change Commission.

Government response

Budgets alone won't achieve our targets. We'll also need to implement policies to reduce emissions. We propose the Bill requires the Government to publish a plan to meet future emissions budgets. The plan would provide a longer term strategy for the economy and society to support the transition.

Developing a longer term strategy for a low emissions economy has been recommended by the Productivity Commission in their draft final report¹⁵. It is also consistent with the Paris Agreement which has an expectation that we publish a Long Term, Low Emissions Strategy. Having this in place promotes international cooperation and indicates we are following a rules-based system globally that holds countries to account for meeting global climate change goals.

We have a choice about how we require Government to prepare and publish its plans and policies. We propose that in response to each emissions budget the Government publish:

- a 10-15 year outlook on the choices for our transition pathway
- specific policies within sectors to reduce emissions and achieve the emissions budget (e.g. incentives to support low emission alternatives, like energy efficiency standards)
- other actions we need to take. For example, supporting investment in low emissions sectors and funding for research
- how we address challenges faced by vulnerable communities and sectors to ensure a just transition.

We're proposing that the Government must publish its plan within a set timeframe after each budget has been announced.

¹⁵ Productivity Commission, Low-emissions economy, Draft report, April 2018

Other design features of emissions budgets

Monitoring emissions budgets

We need to monitor emissions to determine whether New Zealand is on track (or not) to meet a particular emission budget. New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations) and could be used for this purpose. We propose that a brief annual report is produced to show how New Zealand is tracking towards the emissions budgets, alongside the five-year review period discussed above.

Banking or borrowing from one budget to the next

We propose introducing a small amount of flexibility into each emissions budget. This could be achieved through setting a threshold. At this point, the budget would be considered as being met. There is a risk that without this option, the Government of the day might try to meet a budget exactly - even if this comes at a high cost. For example, it could set stringent policies in the last few months of an emission budget period to stay within budget and this could lead to significant costs and disruptions to people's lives, and bring minimal benefits for emissions reductions overall.

Any shortfall in emissions reductions would still be reported on, and could be borrowed from the next emissions budget. Alternatively, if more reductions are achieved earlier, the excess abatement would be carried forward to the next emissions budget.

Aligning budgets with the NZ Emissions Trading Scheme

The emissions budgets and the NZ Emissions Trading Scheme can easily be designed to be compatible. We are making improvements to the scheme that will give the Government the tools to align the volume of units¹⁶ in the Emissions Trading Scheme with our emission budgets.

Aligning emissions budgets with international commitments

Domestic emissions budgets and budgets used to account for Nationally Determined Contributions (NDCs) have different purposes. Therefore they do not need to be exactly the same. The Parliamentary Commissioner for the Environment noted this in the March 2018 "A Zero Carbon Act for New Zealand" report, and we strongly agree with this.

Importantly, the domestic emission budgets will be directly influenced by the form of the 2050 target, but how we account for our future NDCs will need to align with the requirements of the Paris Agreement. Domestic emissions budgets are able to incorporate some flexibility (e.g. the ability to be revised up or down). By contrast, the ambition of NDCs cannot be lowered as they have to demonstrate progression over time and reflect our highest ambition possible.

While emissions budgets do not need to be the same as NDCs, in setting and communicating the budget we will need to maintain confidence in New Zealand's intention to deliver on Paris Agreement commitments. For this reason, both our accounting for our NDCs and our domestic emissions budgets will need to be robust, transparent and aligned with international norms and clearly communicated to our international partners.

¹⁶ A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

QUESTIONS

6. The Government proposes that three emissions budgets of five years each (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

Pick one:

- Yes
- No

[Optional comment box]

7. Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation)
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

8. Should the Government have the ability to review and adjust the second emissions budget within a specific range under exceptional circumstances?

Pick one:

- Yes
- No

[Optional comment box]

9. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets.

Pick one:

- Yes
- No

[Optional comment box]

10. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the 'emissions budgets'?

Pick one:

- Yes
- No

[Optional comment box]

11. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

A new Climate Change Commission

SUMMARY

The Zero Carbon Bill could establish a new Climate Change Commission (the Commission) to provide independent expert advice and support New Zealanders to hold Governments to account towards progress.

- There is a spectrum of roles that the Commission could take, from advisory through to decision-making.
- We propose the Commission would have an advisory role in providing advice on:
 - the level of emissions budgets
 - areas of the economy to focus on when achieving emissions budgets
 - issues related to climate change as requested.
- We propose the Commission would have a role in monitoring New Zealand's progress towards emissions budgets and reducing the risks of climate change:
- There is a spectrum of roles that the Commission could have with respect to the NZ Emissions Trading Scheme (NZ ETS), from advisory through to decision-making.
- The Commission could advise on the upper limit of international unit use

We seek your views on:

- the proposed set of core functions for the Commission, and the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- what expertise Commissioners need.

Institutions to support transition

Why set up a new Climate Change Commission

New Zealanders need confidence that climate change policies will remain in place, and that our pathway to the long-term goal will stay broadly consistent. We think that a Climate Change Commission would be the best tool to show that New Zealand is on track and to hold Governments to account.

Climate change is a long term problem yet decisions are needed now on how we address it. There is a strong case for 'insulating' the policy making process from short term political pressures. Introducing a new Climate Change Commission would provide ongoing independent, expert advice to Government on how we make the transition.

Some other countries¹⁷ have already established an independent institution to provide independent advice to government. Both the former and current Parliamentary Commissioners for the Environment (PCE) and the Productivity Commission have recommended an institution like this should be established in New Zealand.

¹⁷ This includes the United Kingdom, Australia, Denmark, Ireland, Finland, and Sweden.

For the Commission to be successful, and become a trusted and stable part of New Zealand’s government institutions, it would need:

- political consensus for its work underpinned by widespread community and business support
- stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process
- a capable secretariat with access to good quality data from across government

CASE STUDY: THE UK MODEL

The UK’s Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the PCE and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee also has a Sub-Committee dedicated to the role of adapting to climate change.

What role could the Commission have?

The Commission’s role could range across a spectrum from advisory through to decision-making. The decisions that we will need to take on climate change policy will have a broad impact on New Zealanders. Determining the right role for the Commission depends on balancing how much power and independence we give to appointed Commissioners, compared to democratically accountable bodies (i.e. the Government).

Currently, decisions on climate change policy are made by government through the support of advice from officials across government departments. New laws, and changes to existing laws, are subject to the Parliamentary process, providing both important checks and balances as well as flexibility for elected Governments to make decisions based on their own priorities.

Too much power could make a Commission more at risk of being removed by future parliaments. However, if not enough weight and attention is given to the Commission’s recommendations, this could reduce its effectiveness. Both the PCE and the Productivity Commission have recommended New Zealand establish a Climate Change Commission based on the example of the United Kingdom Committee on Climate Change. This would be an advisory role, with mechanisms built in to hold Government to account, as described in Table 4 below.

Table 4: Possible options for the role of a new Climate Commission

	Advantages	Disadvantages
<p>Advisory-only</p> <p>Provides expert advice but the Government is not obliged in a strong way to respond to recommendations</p> <p><i>(Similar to the Parliamentary Commissioner for the</i></p>	<p>Provides an additional source of expert independent advice on climate change issues</p>	<p>Not likely to give strong additional accountability to Government, as there is no requirement to publicly respond to advice.</p>

<i>Environment model)</i>		
<p>Advisory, with mechanisms built in to hold Government to account</p> <p>Government must publicly respond to and provide rationale when it deviates from the Committee’s advice.</p> <p><i>(Similar to the UK model - Committee on Climate Change – with strong requirement to develop policies within a specified timeframe)</i></p>	<p>Creates a sound source of advice from an independent Committee, and a hurdle for Government to deviate from that advice.</p> <p>Maintains Government’s ability to make decisions on policy, and to trade off outcomes across the economy and society.</p>	<p>The commitment to the long term goal under this option is not as strong as the decision making option.</p>
<p>Decision-making</p> <p>Commission makes decisions or sets policy under its own authority at arms-length from Government</p> <p><i>(Similar to our Commerce Commission)</i></p> <p>Note, no other countries have a Commission with a decision-making role.</p>	<p>Creates a very strong commitment to the long term goal by delegating decisions to an independent authority.</p>	<p>Decisions on climate change policy require trade-offs against a range of outcomes. Delegating decisions to an independent authority risks making progress on climate outcomes, while neglecting other social and economic outcomes.</p> <p>Delegating too much power to the Commission could risk susceptibility to changes by future parliaments. This could damage its stability.</p>

We propose that the Commission plays an advisory role (option two). This creates a new channel of independent public advice, and strikes a good balance between providing additional accountability, while ensuring governments are able to make decisions based on their own priorities.

Advisory and monitoring functions

We propose the Commission has the following advisory and monitoring functions:

- **Emissions budgets** - Advise on the most appropriate level and make-up of an emissions budget and monitor our progress towards achieving them.
- **Independent expert advice** – Provide independent advice on areas of the economy to focus and achieve emissions budgets and what’s important to consider getting there.
- **2050 Target** – Periodic check-in on the target level in light of changes in technology, as well as accounting for what the rest of the world is doing. The Commission could advise the Government on the most appropriate level for the 2050 target. Please see the 2050 target section for more details.
- **Adaptation** - Monitor New Zealand’s progress towards addressing the risks posed by climate change. Publish a report setting out progress towards delivering the National Adaptation Plan
- **International emission reductions** – advise on the extent to which international emission reductions should be used towards our targets

The Commission's role in the NZ Emissions Trading Scheme (NZ ETS)

We are seeking your views on what role the Commission should have with regard to the operation of the NZ ETS. The NZ ETS is a well-established tool that puts a price on emissions and supports New Zealand to meet its climate change targets.

A key finding of the most recent review of the NZ ETS is that current settings have created significant regulatory uncertainty. If the Commission had either an advisory or decision making role on the NZ ETS, it may help provide greater policy stability and predictability. This may result in more consistent long term signal to business to invest in low emission technologies and forestry.

The Commission could have an advisory role on the NZ ETS. This view is supported by two recent reports. The Draft Productivity Commission report on a low-emissions future suggested a Climate Change Commission could make recommendations on unit supply in the NZ ETS, based on evidence, for the government of the day to adopt, modify or reject.

"The Productivity Commission agrees that it is not appropriate for a Climate Commission to have decision-making powers. New Zealand's transition to a low-emissions economy will have profound and widespread impacts, and require the weighing of a range of economic, environmental, social and foreign policy considerations..... no government has so far been willing, or deemed it prudent, to transfer decision-rights on climate change mitigation matters to an independent body."

In addition, the Parliamentary Commissioner for the Environment (PCE) report *A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and Beyond (March 2018)* recommended that unit supply in the NZ ETS should be determined by the Government as part of its policy implementation responsibilities.

"Instead of giving the Commission a decision-making role, the Zero Carbon Act could require the Commission to provide advice prior to any change a Government might seek to make to ETS settings"

Another option is for the Commission to have a decision-making role with respect to the NZ ETS, such as the overall level of units supplied into the NZ ETS. This is likely to result in a highly independent NZ ETS, with a very clear role in reducing emissions. The Commission's decisions may also have the following outcomes:

- determining the overall cost to our economy of meeting our target
- setting the maximum emissions prices for NZ ETS businesses
- the emissions cost exposure for our emissions intensive and trade-exposed industries

These outcomes have implications for the emissions costs for businesses and households, the overall functioning of the New Zealand carbon market and on public finances. This may result the Commission having decision-making powers that have traditionally been associated with Government. This would need to be balanced with the advantages of the NZ ETS being managed with a high level of independence to support New Zealand meet its climate change targets.

WHAT THE NZ ETS DOES

The New Zealand Emissions Trading Scheme (NZ ETS) puts a price on greenhouse gas emissions by issuing a restricted volume of permits to emit into the market. The NZ ETS requires all sectors of New Zealand's economy to report on their emissions and, with the exception of emissions from agriculture¹⁸, to purchase and surrender emissions units to the Government for those emissions.

This creates a financial incentive for businesses to invest in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission Units (NZUs) as their trees grow and absorb carbon dioxide.

The NZ ETS was reviewed in 2015/16. There was a clear call from stakeholders to improve the stability and predictability of the scheme. As a result the Government has made in-principle decisions on a package of four proposals to improve the operation of the NZ ETS in the 2020s. The in-principle decisions are expected to be implemented in 2019 following further policy development and consultation later in 2018.

The in-principle decisions include: introducing auctioning of units, to align the NZ ETS to our climate change targets; limiting participants' use of international units when the NZ ETS reopens to international carbon markets; developing a different price ceiling to eventually replace the current \$25 fixed price option; and coordinating decisions on the supply settings in the NZ ETS over a rolling five-year period.

Design choices for a new Commission

What the Commission could consider when undertaking its work

It's important that the Commission undertakes all of its proposed functions in a transparent and predictable way. To do this, we propose that the Commission be required to consider a number of factors set out in legislation. The United Kingdom's Climate Change Act 2008 offers a useful precedent for what matters their equivalent Commission should take into account when undertaking its work. These include:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy

These considerations will help inform judgements on the level of emissions budgets, and the pace of our economic transition. In New Zealand we will need to take into account our own circumstances. This includes our obligations under the Treaty of Waitangi.

The Commission could also consider the three Government objectives for climate change policy: sustainable economy; global and local leadership and creating a just and inclusive society.

¹⁸ Methane and nitrous oxide.

The implications for the Government on the Commission's role and functions

The Zero Carbon Bill will propose new requirements on Government to respond to the reports of the Commission. Where the Commission provides advice, such as on the emissions budgets, Government would be required to take this into account and issue a public report in response. Where the government's actions differ from the advice of the Commission, these reports should outline why.

Where the Commission has monitoring functions, the Government would also be required to publicly respond to the Commission's monitoring report. Requiring the Government to do this within a timeframe of six to twelve months will provide additional accountability.

This accountability is important so New Zealanders can see how governments are planning for and addressing climate change issues.

What expertise should the Commission have?

We are seeking your views on the range of expertise that the Climate Commissioners should have. Based on the UK model we would expect 5-8 commissioners could bring a range of expertise. This is important as the credibility of the Commission depends in large part on its membership

We consider the essential expertise needed on the Commission includes:

- high level of standing in society
- sector experts as opposed to stakeholder representation
- climate change policy (including emissions trading)
- resource economics and impacts (including social impacts, labour markets and distribution)
- te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- climate and environmental science including mātauranga Māori
- experience with addressing adaptation challenges like planning, insurance and local government
- risk management
- Engineering/infrastructure

Desirable, but non-essential, expertise could include:

- business competitiveness
- knowledge of the public and private innovation and technology development system
- economics
- community engagement

Including the expertise needed in the Commission in primary legislation aligns with the UK approach¹⁹ and the recommendation of our Parliamentary Commissioner for the Environment²⁰.

¹⁹ This approach also aligns with the UK's Climate Change Act 2008 set out in: <https://www.legislation.gov.uk/ukpga/2008/27/schedule/1>

²⁰ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

QUESTIONS

12. Should New Zealand have a new independent Climate Change Commission to provide an independent and expert role in New Zealand's response to climate change?

Pick one:

- Yes
- No

[Optional comment box]

13. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with the proposed list of core functions in this chapter?

Pick one:

- Yes
- No

[Optional comment box]

14. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Comment box]

15. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed list in this chapter?

[Comment box]

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Adapting to the impacts of climate change

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- Even with successful reduction of greenhouse gases, we will need to adapt to the impacts of climate change.
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.

We propose that the Zero Carbon Bill includes the following adaptation provisions to help decision makers manage their climate change risks in a systematic way:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

We are seeking your views on:

- the scope, scale and content of the National Climate Change Risk Assessment and National Adaptation Plan.
- the respective roles of central government and the Climate Change Commission for each of the adaptation provisions.
- how an Adaptation Reporting Power should be used and who it should apply to.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at xx.

Increasing our resilience

Regardless of what level of ambition we set within a new Zero Carbon Bill, our climate will continue to change over the coming decades.

As a result, we will continue to face risks from rising sea levels and extreme weather, but also from slow changes to our ecology – our animals, plants and soils underpin not only the primary sector, but also human health.

The costs from climate change are already high, and growing. For example, in the last 10 years the cost of weather events to our transport network has increased from about \$20 million per year to over \$90 million per year.²¹ Reports from the Parliamentary Commissioner for the Environment indicate that the cost of replacing every building within half a metre²² of the spring high tide mark could be \$3 billion and within 1.5 metres, as much as \$19-20 billion²³.

²¹ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

²² The mid-range projected sea-level rise over the next 50 years is about 30 cm, and could vary between 20 and 50 cm. Note in the last 100 years seas have risen around 14-22 cm.

²³ "The RiskScape analysis in NIWA, 2015b shows that the replacement value of buildings within 50 centimetres of the spring high tide mark is \$3 billion and that of buildings within 150 centimetres of the spring high tide mark is \$20 billion." *Preparing New Zealand for Rising Seas: Certainty and Uncertainty: Office of the Parliamentary Commissioner for the Environment, New Zealand. 2015.*

We are committed under the Paris Agreement to plan for and take action on climate change adaptation. In 2016, a Climate Change Adaptation Technical Working Group (CCATWG) was set up to provide advice on adapting to the impacts of climate change while sustainably growing our economy. Two reports have now been released²⁴, with the most recent identifying a series of actions New Zealand should take to increase resilience and adapt to our changing climate.

This section considers possible tools that could be used to help us adapt to climate change.

Creating the right environment for adaptation

At the moment, the way we respond and adapt to climate change is not well co-ordinated. Many of the risks, impacts and mitigation are dealt with across a number of different legislative and regulatory regimes.

There are gaps in our information. We have some knowledge about the impact of sea level rise on our coastlines and communities, but even less about the impact rising temperatures will have on our natural systems – what unwanted plants and animals might arrive and thrive as a result, or the impact of ongoing extreme weather events on production in the primary sector. There's more work to do to understand the possible impacts on our health, biodiversity and culture over time.

The Zero Carbon Bill could put requirements into law that we understand the risks, and have a plan to manage them. Setting up the right tools for decision-makers would help us consider the risks to the whole of society and the economy. We could also introduce ways to encourage or require some organisations to share more information on their exposure to climate change risks.

If we introduce, through primary legislation, a way to assess risks and create a plan to adapt, we can take a broad view, and ensure the right settings are in place to respond. This includes how we respond to different needs in different communities around New Zealand. We propose that the Zero Carbon Bill includes:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

A National Climate Change Risk Assessment

Climate change exacerbates existing risks and creates new risks.²⁵ Many councils and communities are already dealing with some of these.

At the moment, our actions to adapt are ad hoc and we can't measure our effectiveness. To address this we propose introducing a compulsory national climate change risk assessment that is updated regularly.

Having this type of assessment is a priority, according to the Climate Change Adaptation Technical Working Group. If we can get a better understanding of which areas and communities are the most exposed and vulnerable to risks, we can ensure we're taking the most effective actions to address these.

Our first step is determining what the risks are for people, infrastructure, the natural environment and the economy. This information needs to be accessible and standardised to help decision-makers - including iwi/Māori, communities, transport and infrastructure sectors, private sector firms, and central and local government.

²⁴ Available at: <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

²⁵ IPCC (2014).

A risk assessment would need to align and inform other risk work by Government. It could provide valuable information to the National Security System and the Ministry for Civil Defence and Emergency Management and other interested agencies. The proposed National Climate Change Risk Assessment would:

- identify risks to New Zealand that arise from, or are worsened by climate change
- provide the necessary evidence to improve how we communicate current and future risks and opportunities
- provide a foundation for investment and decision-making, and guide future work
- inform development of a National Adaptation Plan (see section on the plan)
- Inform planning and actions to minimise the cost of future climate-related disaster response and recovery
- contribute to an approach across all sectors to help stimulate action in a systematic way
- provide accessible and standardised information for decision-making

Placing this requirement in primary legislation means future risk assessments continue to take a broad view across the economy and society and there will be continuity over time, creating a more stable policy environment.

A National Climate Change Risk Assessment report would be publicly available, updated at five yearly intervals and the Climate Change Commission would hold responsibility for this.

While the Commission is being set up, the first Assessment could start immediately by external experts, with future assessments falling under the responsibility of the Commission. Future assessments could include information obtained through the use of the Adaptation Reporting Power (see more details later in this chapter).

A National Adaptation Plan

Climate change adaptation is not currently integrated into many central government agency objectives. This means legislation and regulatory frameworks and policies around long-term planning are not well aligned. This makes it difficult for local government, businesses and communities to proactively organise themselves and take action.

To date most action taken to adapt to climate change has been reactive. In the case of local government, responses to climate damage are paid for out of maintenance funds. With clear direction, local government and others would have more certainty. This would mean they could plan funding for ongoing climate change-related impacts.

We propose introducing a way to have a planned response to climate change risks. This would provide a national approach to prioritising adaptation action. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, a National Adaptation Plan would:

- identify priority actions for addressing risk, as identified in the climate change risk assessment, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks
- help clarify roles and responsibilities on climate change adaptation across different pieces of legislation, different sectors of society, and determine who needs to act on what and when
- be aligned with the work of Civil Defence and Emergency Management, including the need for community and individual resilience

- be designed to deal with changing risks and encourage proactive planning in a comprehensive way
- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society and including iwi/Māori
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

We propose that the Government rather than the Climate Change Commission holds responsibility for the National Adaptation Plan. To address local challenges, we would develop the plan with local government and other stakeholders. The Plan should be updated at five-yearly intervals, to synchronise with the five-yearly climate change risk assessment process.

We would require ongoing evaluation of how the National Adaptation Plan is being implemented. This will ensure the Plan endures, and that it leads to effective adaptation action. We recommend that the Climate Change Commission reviews how the National Adaptation Plan is being implemented at the mid-point of each five year cycle. The outcomes of each review could be used to update the next iteration of the plan.

Exploring potential for an Adaptation Reporting Power

We want to explore whether the government should introduce an Adaptation Reporting Power. At the moment we don't have a clear picture of what action is being taken as part of risk management processes by organisations which are 'privatised' or in crown entities/state owned enterprises/council controlled organisations.²⁶

We think we could get a better picture of our risks and opportunities if we could get more information from organisations that own public infrastructure or deliver public services.

We want to hear your views on whether we should explore this further. The type of questions we could consider are:

- the value of having a targeted and specific reporting obligation from organisations
- who this would apply to – should this cover state owned entities, local and central government and / or private companies that provide public services like energy, and transport services including rail
- what the choices are around such a power being voluntary, or included in legislation and mandatory
- what such reporting should cover. For example, how ready organisations are to respond to risks and opportunities

There are likely to be some benefits from this approach. Organisations would be better informed, and more prepared to mitigate or manage risks that have been identified. The reports would reveal how 'ready' organisations are. And they would help government design supportive policies and to ensure that the regulatory environment encourages adaptation.

²⁶ These organisations all have different governance arrangements, some constituted under specific legislation, some will be crown entities, some private companies, some publicly listed companies.

Experience in the United Kingdom has found that mandatory reporting delivers a higher standard of reports, as well as complete coverage from the required organisations, providing a better understanding of the adaptation action being taken.

However, it would also bring administrative and compliance costs to both organisations and government.

QUESTIONS

16. Do you think the Zero Carbon Bill should cover adapting to climate change

Pick one:

- Yes
- No

[Optional comment box]

17. The Government has proposed a number of new functions in this chapter to help us adapt to climate change. Do you agree with the proposed functions?

Pick one:

- Yes
- No

[Optional comment box]

18. Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

Pick one:

- Yes
- No

[Optional comment box]

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PART THREE: Next steps

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. The Zero Carbon Bill won't get us through the transition by itself. We also need to continue with a strong emissions pricing regime through the NZ ETS, develop regulation and policy in areas to complement emissions pricing, and support innovation and investment in low emissions technologies.

We are not starting from scratch. Government has a number of existing initiatives alongside the Zero Carbon Bill, including:

- strengthening and improving the New Zealand Emissions Trading Scheme
- developing land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees, and
- establishing a Green Investment Fund to stimulate new investment in low-carbon industries.

Our towns and cities are also contributing. Regional and territorial authorities are improving their understanding of how to adapt to climate change and putting in place plans for low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. For example, it has worked with the dairy sector to develop the 'Dairy Action for Climate Change', helping farmers reduce emissions over time. The Low Emissions Roadmap with Fonterra is helping large energy users' transition off fossil fuels and onto renewable energy sources.

Your feedback will help shape the Zero Carbon Bill

Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill. The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Later this year, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

Appendices

Table 5: Mitigation opportunities in key sectors where emissions reductions are possible

ENERGY	<p>The energy sector is experiencing rapid technological innovation and will play a huge role in the transition. For example:</p> <ul style="list-style-type: none"> • Electric Vehicles are already economic over the lifetime of the car in some roles and we can expect EV uptake will substantially reduce emissions, and higher public transport use. • Hydrogen fuel cell vehicles might also play a role, and/or advanced biofuels and similar technologies, particularly for moving freight. • Industrial process heat (e.g. milk and meat processing) holds potential to improve energy efficiency and switch to much lower emission fuels such as woody biomass or electricity. • Wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We still have extensive high-quality untapped renewable energy resources. • Energy efficiency improvements from the use of residential LED lighting and industrial scale plant modifications can reduce emissions directly or help lower costs of using cleaner energy sources.
AGRICULTURE	<p>A methane vaccine is under development to mitigate on-farm emissions in the dairy, sheep and beef sectors. Research and development may give rise to material on-farm abatement opportunities in the future.</p> <p>Land use change to lower-emitting uses will likely be needed to achieve material emission reductions from agriculture.</p>
FORESTRY	<p>Increasing our forested land area will play a huge role in soaking up more emissions, both commercial plantation forests and permanent native forests.</p> <p>Forestry helps buy us time until other technological developments or options become available, but we'll need continued emissions reductions post 2050 - beyond planting ever more trees - to maintain a low-emissions economy.</p>
INDUSTRIAL PROCESSES	<p>Efficiency gains in industrial processes (i.e. steel, cement, fertiliser etc.) will help as there are currently a limited number of available technology options.</p> <p>Industrial product-use sectors have viable alternatives, and improved management practices, that can markedly reduce the impacts of other high greenhouse gas potential products (e.g. improving refrigerant use and disposal).</p>
WASTE	<p>Waste can be a valuable resource, for example, Palmerston North's waste treatment plant anaerobic digestion of organic waste creates 'renewable methane' used to generate electricity.²⁷</p>

²⁷ Available at: <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

We seek your feedback on the specific proposals in the Zero Carbon Bill.

New Zealand's action on climate change

s 9(2)(g)(i) [Redacted]

[Redacted]

- [Redacted]
- [Redacted]
- [Redacted]

[Redacted]

[Redacted]

[Redacted]

- [Redacted]
- [Redacted]
- [Redacted]

[Optional comment box]

2050 Target

3. Should a 2050 emissions reduction target be set in primary legislation under the Zero Carbon Bill?

Pick one:

- Yes
- No

[Optional comment box]

4. What process should the Government use to set a new emissions reduction target in legislation?

Pick one:

- The Government sets a 2050 target in legislation now
- Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.

[Optional comment box]

5. If the Government sets a 2050 target now, which is the best target for New Zealand?

Pick one:

- **Status quo.** Current gazetted target of a 50% reduction below 1990 levels by 2050
- **Net Zero Carbon Dioxide.** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases.** Long-lived gases to net zero by 2050, while also stabilising short-lived gases
- **Net Zero Emissions.** Net zero emissions across all greenhouse gases.

[Optional comment box]

6. How should New Zealand meet its emissions reduction targets?

Pick one:

- Domestic emissions reductions only (including from new forest planting)
- Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas (international carbon units) that have strong environmental safeguards.

[Optional comment box]

7. Should the Bill allow the target to be revised if circumstances change?

Pick one:

- Yes
- No

[Optional comment box]

Emissions budgets

8. The Government proposes that three emissions budgets of five years each (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

Pick one:

- Yes
- No

[Optional comment box]

9. Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation)
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

10. Should the Government have the ability to review and adjust the second emissions budget within a specific range under exceptional circumstances?

Pick one:

- Yes
- No

[Optional comment box]

11. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets.

Pick one:

- Yes
- No

[Optional comment box]

Government response

12. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the 'emissions budgets'?

Pick one:

- Yes
- No

[Optional comment box]

13. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

Climate Change Commission

14. Should New Zealand have a new independent Climate Change Commission to provide an independent and expert role in New Zealand's response to climate change?

Pick one:

- Yes
- No

[Optional comment box]

15. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with the proposed list of core functions in this chapter?

Pick one:

- Yes
- No

[Optional comment box]

16. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Comment box]

17. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed list in this chapter?

[Comment box]

Climate Change Adaptation

18. Do you think the Zero Carbon Bill should cover adapting to climate change?

Pick one:

- Yes
- No

[Optional comment box]

19. The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with the proposed functions?

Pick one:

- Yes
- No

[Optional comment box]

20. Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

Pick one:

- Yes
- No

[Optional comment box]

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From: [Janine Smith](#)
To: [Lewis Stevens](#); [Zoe Mack](#)
Subject: FW: Signed BN on ZCB discussion document + Minister's comments on the draft DD
Date: Monday, 21 May 2018 10:09:07 AM
Attachments: [image001.jpg](#)
[21.05.2018_ZCB_DD_comments_JS.PDF](#)
[2018-B-04588 Draft ZCB discussion document and Cab Paper.pdf](#)

Can you please triage these comments – I want to go in with what are the three areas we'd like to discuss – how we can take on board the comments

From: Sarah Deblock [mailto:Sarah.Deblock@parliament.govt.nz]
Sent: Monday, 21 May 2018 9:20 a.m.
To: Roger Lincoln; Janine Smith; Jemima Jamieson; William Tait; Paul Alexander; Dylan Mugeridge; Mark Storey; Craig Salmon
Cc: Ministerials
Subject: Signed BN on ZCB discussion document + Minister's comments on the draft DD

Morena,

You'll find attached the signed BN on the draft ZCB discussion document and Cabinet Paper (note his comment "Excellent" 😊). & the scanned pages of the DD where the Minister or Robin had comments.

They realise that changes cannot be made to the document before tomorrow's ENV Committee meeting, but could they be taken into account in the revised version after ENV?

Thanks

Sarah



Sarah Deblock | Private Secretary, Climate Change

Office of Hon James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance

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PART ONE: Introduction

» He mokopuna he tupuna. «

SUMMARY

Our climate is changing, and our economy needs to respond as part of a global transition to a net zero emissions, climate-resilient future. This will require a fundamental economic shift in New Zealand.

As we have seen from transitions in the past, such as the industrial and digital revolutions, economic transitions can create challenges – but also opportunities. Taking early action in the right areas is likely to avoid the need for more abrupt action later.

As New Zealanders, we need to make decisions about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures. What we decide must endure political cycles, whilst enabling successive governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future. This is a critical conversation to have now, and we invite you to be part of it.

Background

What is climate change?

The Earth's atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small amount of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze. But increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

Over the past 200 years there has been a big increase in human-generated greenhouse gases from activities like burning fossil fuels, farming, and cutting down forests.² The global climate is changing rapidly compared to natural variations in the past. The world has already warmed about 1 degree Celsius since 1900, and the increase in greenhouse gases is the main reason for this. The temperature will continue to rise and if we don't curb emissions, the risks of harmful impacts on people and ecosystems will increase.

² Trees act as a 'carbon sink'—a natural storage area—for carbon dioxide by absorbing or 'sequestering' it over time through the process of photosynthesis. This means that when areas are deforested, the carbon dioxide stored in those trees is released into the atmosphere.

The impact of climate change so far

We are already feeling the impacts from a changing climate. In the last 100 years seas have risen around 14-22cm in New Zealand ports. More recently, our regions, businesses and communities have suffered costly damage and disruption from coastal erosion, more frequent and severe weather events (flooding, droughts and wildfires) and damage to infrastructure and assets. This includes damage to sites of significance to Māori. Many Māori communities have ancestral ties with coastal areas with cultural heritage - marae, wāhi tapu, and mahinga kai rohe.

The costs we face are continuing to rise. As an example, in the past 10 years the cost of weather events to our transport network have risen from about \$20 million per year to over \$90 million per year.³

The Paris Agreement

New Zealand signed the Paris Agreement two years ago. It sets out the international response to the threat of climate change. It has been a game-changer - the world is now committed to a low emissions future.

The Paris Agreement says the world will:

- keep the increase in global average temperature to well below 2°C above pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5°C, with an aim to reach peaking of global greenhouse gas emissions as soon as possible and to reach net-zero emissions by the second half of the century
- enhance the ability of countries to adapt and reduce vulnerability to the adverse impacts of climate change
- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient economies.

Our first target under the Paris Agreement is to reduce greenhouse gas emissions to 30 percent below 2005 levels by 2030 (11 percent below 1990 levels). The Paris Agreement sets out developed countries' role in the transition and says they should "continue taking the lead by undertaking economy-wide, absolute emission reduction targets". More detailed rules are due to be finalised this year.

What do our emissions look like?

A large part of our economy is based on primary industries. Agriculture makes up nearly half of all emissions in New Zealand.

near 50%

³ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

benefit from mātauranga Māori (traditional knowledge) and Te Ao Māori (the Māori world view) through our Treaty partnership.

Some of the challenges we will face include:

- there's a chance that GDP will grow less quickly
- significant changes to our energy and transport sectors, and probably agriculture too
- some industries will experience decline while others emerge, with implications for some jobs and regions
- vulnerable communities could be harder hit
- moving too early could affect the competitiveness of our trade exposed businesses. This risks 'emissions leakage'⁴

We have used independent, expert modelling to help us think about the implications of the different economic choices we have. While modelling gives us a reasonable view through to 2030, beyond that the modelling is stretched to its limits. Overall it shows us that the economy will grow less quickly than it otherwise would have without climate change action.

It also tells us that some sectors and therefore some communities and regions will be affected more than others.

The Government is committed to a just and inclusive transition. It will need to work close with workers, businesses, investors, Māori and regional partners to provide support to manage adjustments in communities, for example, training and upskilling people into new low emission jobs – this is why we need to provide the laws and institutions to support the transition.

Change isn't new. Our agriculture sector has responded to constant land use and other changes over the past 70 years, and as a result, we are considered leading edge, globally. The internet and digital economy have also transformed many sectors and how productive we can be. Preparing for the change, and investing in our progress will make the transition less disruptive.

Setting up for the transition

A low-emissions economy needs stable and credible climate policies that include: emissions pricing, laws and institutions; regulations and policies; and the right innovation and investment settings.

Our first step is to put the right laws and institutions in place. The Parliamentary Commissioner for the Environment and the Productivity Commission see this as a pivotal part to moving to a low emissions economy – the Government agrees. It's a path that a number of countries have now taken.

The proposals in the Zero Carbon Bill aim to set the country's long term commitment and provide transparency about what future policies we intend to use to achieve this. The Bill would:

- set targets in legislation for our emissions and the stepping stones to reach these
- set up the institutional arrangements to recommend how to reach these targets
- monitor how we're tracking towards them
- establish a process to understand risks and plan for adapting to climate change.

⁴ Emissions leakage is when there is relocation of production to countries with less stringent climate change policies.

or, "Overall it shows us that there is a probability that the economy will grow less quickly..."

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and help people hold politicians accountable.

This work will be guided by the following objectives:

- **Sustainable and productive economy:** Continuing to grow and diversify the economy, while limiting greenhouse gas emissions and responding to the impacts of climate change.
- **Global and local leadership:** Leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the key way for New Zealand to influence the global climate action response
- **Creating a just and inclusive society:** Managing the pace of the transition, and supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

Other work needed to transition

A lot of other work will be needed to support these core arrangements. Although we haven't made significant progress in bending the curve on our emissions, the work to transition is already underway. We have regulations and policies in place and we are moving capital to low emissions investments. Some specific initiatives include:

- strengthening and improving the New Zealand Emissions Trading Scheme (NZ ETS)
- developing a land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees
- establishing a Green Investment Fund to stimulate new investment in low-emissions industries.
- continuing to develop practical solutions in the agriculture sector where New Zealand is already a world leader, such as animal breeding and vaccines to reduce methane.

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MĀORI AND IWI LEADERSHIP IN THE TRANSITION

‘Toitū te Marae o Tāne, Toitū te Marae o Tangaroa, Toitū te Iwi - When land and water are sustained, the people will prosper’

There are opportunities for iwi and Māori-owned businesses to show leadership in the transition. Te Ao Māori and kaitiakitanga underpins leadership that can drive positive change. There will be opportunities for the Māori economy through the transition; however, there will also be challenges. For example, Te Ture Whenua Māori Act 1993 has implications for how that land can be used and is governed.^[1]

As an example of a leading iwi-run farm, Ngāi Tahu Farming applies advanced best-practice land and water use across the nearly 100,000 ha of dairy, sheep and beef farms and forestry land it manages in Te Waipounamu (South Island). It's focusing on reducing greenhouse gas emissions through collaborative research and on-farm practices including tree planting to create carbon sinks. It has been able to and reduce stock while improving productivity. Ngāi Tahu Farming's General Manager Shane Kelly believes the agriculture sector will play an important part in New Zealand's shift to a net zero emissions economy, advocating a collaborative and staged process. Farmers are looking for direction and leadership, he says. "We all want to look after our environment and we need to work collaboratively as a nation. It's a huge opportunity, the question is, how do we make this work together as a nation?"

Should we use Ngai Tahu Farms
with Lisa on the Intensive Cattle?
Perhaps Tayso Beef?

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[1] Much of the 1.4 million hectares of Māori land (99.5% of which is freehold) may be difficult to alter or eliminate due to three unique characteristics. It is predominantly small blocks with only a small proportion of arable land. It is subject to cultural importance to current and future generations. It has individual, yet multiple ownership.

PART TWO: Proposals

SUMMARY

The Zero Carbon Bill could set a new long-term emissions reductions target.

There are three key considerations in exploring setting a new target: The Paris Agreement, the science of short-lived and long-lived gases and the potential economic impacts of different targets.

There are four target options we explore:

- **Status quo:** The current target of 50% reduction below 1990 levels by 2050
- **Net Zero Carbon Dioxide:** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases:** Reduce emissions of long-lived gases to net zero by 2050, while also stabilising emissions of short-lived gases
- **Net Zero Emissions:** Net zero emissions across all greenhouse gases.

This section outlines the possible implications of different targets; whether we should use emission reductions from overseas; the legislative options we have for setting a new target; the potential role of a new Climate Change Commission; and how we could include flexibility to meet our targets over time.

We are seeking your views on:

- *What target we should set*
- *How New Zealand should meet its emissions reduction targets*
- *Whether or not the target should be set in primary legislation*
- *Whether the target should be able to change*

2050 Target

We propose introducing a new 2050 climate change target into the Zero Carbon Bill. This would give the target more prominence and discourage changes of ambition in response to short-term considerations.

Setting a new target would:

- provide an enduring, long-term signal to businesses, consumers, and New Zealanders
- provide alignment to the Paris Agreement's global goal of reaching net zero emissions by the second half of the century
- help to inform our successive Nationally Determined Contributions (NDCs)
- signal to the world that New Zealand is playing its part in the global effort.

Setting targets is not new. New Zealand has already made commitments to reduce emissions to:

- 5% below 1990 levels by 2020
- 11% below 1990 levels by 2030 (or 30% below 2005 levels by 2030)
- 50% below 1990 levels by 2050.

Table 1: Economic and emission outcomes of the options for the 2050 target

TARGETS	Status Quo	Net Zero Carbon	Net Zero Long-Lived Gases and Stabilised Short-Lived Gases	Net Zero Emissions
EMISSIONS	50 percent reduction (all gases) on 1990 levels by 2050	Net zero carbon dioxide emissions by 2050	Net zero long-lived gases by 2050, while also stabilising flow rate of short-lived gases	Net zero emissions (all gases) by 2050
LAND SECTOR	<ul style="list-style-type: none"> Moderate land use change Expanded forestry estate 	<ul style="list-style-type: none"> Land-use outcomes more uncertain because targets not prescriptive for methane Expanded forestry estate needed to offset CO₂/N₂O Main driver of land-use change will be the level of ambition for methane reductions 		<ul style="list-style-type: none"> Major land use change needed to reduce or offset methane and CO₂/N₂O Up to 10 percent of New Zealand given over to new forest planting
ENERGY/TRANSPORT	<ul style="list-style-type: none"> High rates of EV adoption (60-80% in 2050) Some reductions from industrial heat 	<ul style="list-style-type: none"> Major changes in energy and transport sectors EVs likely to make up to 95 percent of the light vehicle fleet in 2050 Industrial heat switches from fossil fuel to electricity and biomass Any CO₂ emissions remaining in 2050 would need to be offset by new forest planting 		
TECHNOLOGY OPTIONS	Target allows trade-offs to be made between sectors and technologies as costs and availability change	Target is focussed on CO ₂ , with many of the technologies that we will need already available	Technologies needed for both long-lived and short-lived gas emissions reductions, with limited ability to make trade-offs between progress on both of them	The high target ambition means that most, if not all, current and future technology options for emissions reductions will need to be adopted

CASE STUDY: WHAT TARGETS HAVE BEEN SET ELSEWHERE

Other countries have set 2050 targets. It's important to consider these in light of each country's national circumstances and emissions profile.

The United Kingdom: The UK is legally committed to reducing GHGs by at least 80 percent by 2050 compared to 1990 levels. *The UK is currently considering upgrading to a target of net-zero by 2050.*

The European Union: The EU has a target to reduce GHGs by at least 80 percent by 2050, relative to 1990 levels through domestic reductions alone and 80-95 percent with international emissions reductions. *The EU is also currently considering upgrading to a target of net-zero by 2050.*

Norway: Norway is ^{already} legally committed to reducing GHG emissions to net zero by 2050. (Note: Norway's net is different to ours). Norway has a conditional aim to meet this target earlier, by 2030 – through EU emissions trading/purchasing international emissions reductions.

The opportunities and challenges of transition

To understand both the upsides and the challenges of the transition, we have carried out analysis and modelling to understand what might happen in order to meet different targets. Any modelling will have limitations. It relies on assumptions about the future, like how many trees we plant, and it can't accurately predict things like rapid changes in technology. Looking out to 2050 stretches economic modelling to its limits. Looking back both at changes in technology and the structure of our economy over the last three decades shows that a lot of change is possible.

The actual economic impacts we experience will depend on a number of critical factors, including: how technology and industries develop over time, how consumer preferences change and which policies are put in place to support the transition. Some industries will face competitiveness challenges, and we'll see jobs change. This is why we will ensure that it is a just transition.

Other countries will also be making changes to their economies over this time. There will be opportunities to cooperate and learn from each other. No country's economy will look the same in 2050 as it does today.

What the modelling has considered

We have used independent external experts to carry out a series of studies. Through the modelling, we've captured some of the uncertainties about the future by considering different scenarios. The models used are complex and so it's useful to understand – in broad terms – how they work.

Scenarios change based on: how many trees are planted in new forests – a key factor in the scenarios, rates of innovation and how the rest of the world acts.

When looking at the modelling results we need to keep in mind: our assumption that the transition is made within the domestic market only – with no use of international units; and the absence of transition policies. In reality, governments could decide to ease the transition for some industries, or support vulnerable communities so the transition is just. Not all impacts can be modelled. Notably, the opportunities detailed below

Table 2) aren't included in the assessment of economic challenges.

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Table 2: Summary of the economic opportunities and challenges

OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> • We could see: <ul style="list-style-type: none"> • Higher rates of innovation in sectors exposed to a higher emissions price, leading to an up-lift in productivity • New business opportunities in lower emissions sectors • Less time wasted in traffic congestion and improved health from switches to public and active transport • Health benefits from warmer and drier homes • If the rest of the world acts as well, reduced impact on our economy from climate change effects 	<ul style="list-style-type: none"> • We could face: <ul style="list-style-type: none"> • Slower rates of economic growth as a result of higher emissions prices and other transition policies • Competitiveness issues in trade-exposed emissions-intensive industries • Some emissions intensive production shifting overseas • Decline in output and jobs for higher emissions sectors • Slower rates of growth in household living standards

What the economic modelling tells us

We have assessed both the upside to transition, and modelled the overall impact of the different targets on New Zealand's economy, including on our industries, households, regions and the economy as a whole.

Estimating the size of the upsides

Our analysis has explored the opportunities for stronger climate policy to deliver wider positive effects. While opportunities are often more difficult to quantify than economic costs, we have carried out research which shows substantial wider benefits of transitioning to a low-emissions economy. These include cleaner air, health benefits, reduced congestion, cleaner water and improved biodiversity. For example:

- There would be benefits from public transport and walking and cycling through reduced congestion, safety, health and air quality. A 40% increase in walking and cycling would require \$630 million in infrastructure investment, but the returns would be large: over \$13 billion from now to 2050, mainly from reduced mortality – more exercise means better health.
- Healthier homes from better energy efficiency. For example, every dollar invested in home insulation can provide up to \$4 in health benefits from warmer, drier homes, or \$6 if there is a child or an elderly person living there.
- More forestry can mean benefits for biodiversity and water quality. The value would depend on where trees are planted, but could be worth \$5,600 per year per hectare.
- Faster innovation in emitting sectors – international evidence suggests a close link between strong climate policies and increased rates of innovation.
- Areas we are already world-leading in for research and development (eg agritech) could benefit from first mover advantage, new sectors may emerge, and new business opportunities could arise.
- If the rest of the world acts too, we could see a benefit from avoiding the economic and social damages of climate change on the New Zealand economy.

Whole of economy modelling

We have used two different models to look at how the economy responds to different targets. The two key studies are Vivid Economics (2018) and NZIER (2018). Different methods result in different findings.

The results reported below represent a mid-range across all the modelling information available. The figures could vary significantly in practice, for example if we don't plant enough trees or continue to innovate. The key findings are:

- the economy continues to grow but not as quickly, and the economic impacts could still be significant
- supporting lower income households will need to be part of our approach – otherwise the impacts on these households could be disproportionate
- Some sectors will be harder hit than others
- using a mid-range of results from the models, achieving Net Zero Emissions by 2050 ^{could} ~~would~~ cause average GDP to grow less quickly – from 2.1% under our Status Quo target to 1.9% if we make ambitious efforts to become a net zero emissions economy.

The economy continues to grow but at a slower rate

Under any of the 2050 target options, our economy can continue to grow, just not as quickly as it might have done without any further climate action. However, growth is not assured unless we continue to innovate while substantially expanding our forest estate. Some households and some sectors are likely to face higher costs and more disruption than others. The Government is mindful of this and committed to a 'just transition' approach that supports affected households. Businesses unable to respond could be exposed to competitiveness challenges, and as a result, cease operating.

Meeting a new 2050 target while growing our economy is therefore achievable, but it will not come for free and it won't be without challenge.

Supporting lower income households

Modelling shows the impact of domestic climate action would be felt more strongly by lower income households, because a higher proportion of their spending is on emissions-intensive products, such as petrol. The Government has a number of tools it could choose to use to compensate affected households for higher costs, such as tax or welfare measures. The uneven distribution of costs across different households is an important part of the reason for taking a planned approach to ensure a just and fair transition.

Using the petrol cost example, the Government has signalled it will invest billions of dollars in alternatives to driving petrol cars. This means many people may find it cheaper and more convenient to use buses, trains, cycling and walking to work and to school. They may also switch to driving electric cars that have lower running costs.

Some sectors could be harder hit than others

The uneven impact of climate change action across sectors is a challenging problem particularly for those that have high emissions, compete in international markets, or have limited opportunities to reduce their emissions. Any action to shield particular sectors would mean other sectors would need to step up their efforts. Without government policy to re-direct these efforts, emissions-intensive sectors (for example, sheep and beef farming, dairy processing and petrochemical processing) are more affected than less emissions-intensive sectors (for example, retail services).

Land use decisions are likely to be among the most complex and substantial that we face because we would need to materially expand the forestry estate to meet any of the new target options. For the strongest target we have assessed, Net Zero Emissions, our modelling suggests that new forest planting could need to use as

much as 10% of New Zealand's land area.⁶ While some of this planting could occur on shrub or scrubland, a portion of this planting would need to be on land that is currently used for farming.

Getting to net zero emissions would see GDP grow less quickly

Table 3 is a summary of our modelling results for both economy-wide and household impacts under each of the different 2050 target options based on the NZIER modelling. It shows that the strongest target reported, Net Zero Emissions, requires the highest emissions price and therefore leads to the largest impact on GDP and households. For example, under this target, the economy grows by 1.9 percent each year on average rather than 2.1 percent under the Status Quo (the current target of 50% reduction below 1990 levels by 2050). In dollar terms this slower growth rate is reflected over the transition period as an average GDP of \$373 billion per year for Net Zero Emissions rather than \$381 billion for the Status Quo.

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⁶ Currently over 35% of New Zealand's land area is covered by forests. This amounts to 9.9 million hectares.

A new Climate Change Commission

SUMMARY

The Zero Carbon Bill could establish a new Climate Change Commission (the Commission) to provide independent expert advice and support New Zealanders to hold Governments to account towards progress.

- There is a spectrum of roles that the Commission could take, from advisory through to decision-making.
- We propose the Commission would have an advisory role in providing advice on:
 - the level of emissions budgets
 - areas of the economy to focus on when achieving emissions budgets
 - issues related to climate change as requested.
- We propose the Commission would have a role in monitoring New Zealand's progress towards emissions budgets and reducing the risks of climate change:
- There is a spectrum of roles that the Commission could have with respect to the NZ Emissions Trading Scheme (NZ ETS), from advisory through to decision-making.
- The Commission could advise on the upper limit of international unit use

We seek your views on:

- the proposed set of core functions for the Commission, and the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- what expertise Commissioners need.

Institutions to support transition

Why set up a new Climate Change Commission

New Zealanders need confidence that climate change policies will remain in place, and that our pathway to the long-term goal will stay broadly consistent. We think that a Climate Change Commission would be the best tool to show that New Zealand is on track and to hold Governments to account.

Climate change is a long term problem yet decisions are needed now on how we address it. There is a strong case for 'insulating' the policy making process from short term political pressures. Introducing a new Climate Change Commission would provide ongoing independent, expert advice to Government on how we make the transition.

Some other countries¹⁷ have already established an independent institution to provide independent advice to government. Both the former and current Parliamentary Commissioners for the Environment (PCE) and the Productivity Commission have recommended an institution like this should be established in New Zealand.

¹⁷ This includes the United Kingdom, Australia, Denmark, Ireland, Finland, and Sweden.

For the Commission to be successful, and become a trusted and stable part of New Zealand’s government institutions, it would need:

- political consensus for its work underpinned by widespread community and business support
- stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process
- a capable secretariat with access to good quality data from across government

CASE STUDY: THE UK MODEL

The UK’s Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the PCE and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee also has a Sub-Committee dedicated to the role of adapting to climate change.

What role could the Commission have?

The Commission’s role could range across a spectrum from advisory through to decision-making. The decisions that we will need to take on climate change policy will have a broad impact on New Zealanders. Determining the right role for the Commission depends on balancing how much power and independence we give to appointed Commissioners, compared to democratically accountable bodies (i.e. the Government).

Currently, decisions on climate change policy are made by government through the support of advice from officials across government departments. New laws, and changes to existing laws, are subject to the Parliamentary process, providing both important checks and balances as well as flexibility for elected Governments to make decisions based on their own priorities.

Too much power could make a Commission more at risk of being removed by future parliaments. However, if not enough weight and attention is given to the Commission’s recommendations, this could reduce its effectiveness. Both the PCE and the Productivity Commission have recommended New Zealand establish a Climate Change Commission based on the example of the United Kingdom Committee on Climate Change. This would be an advisory role, with mechanisms built in to hold Government to account, as described in Table 4 below.

Table 4: Possible options for the role of a new Climate Commission

	Advantages	Disadvantages
<p>Advisory-only</p> <p>Provides expert advice but the Government is not obliged in a strong way to respond to recommendations</p> <p><i>(Similar to the Parliamentary Commissioner for the</i></p>	<p>Provides an additional source of expert independent advice on climate change issues</p>	<p>Not likely to give strong additional accountability to Government, as there is no requirement to publicly respond to advice.</p>

Page break across row

<p><i>Environment model)</i></p> <p>Advisory, with mechanisms built in to hold Government to account</p> <p>Government must publicly respond to and provide rationale when it deviates from the Committee's advice.</p> <p><i>(Similar to the UK model - Committee on Climate Change – with strong requirement to develop policies within a specified timeframe)</i></p>	<p>Creates a sound source of advice from an independent Committee, and a hurdle for Government to deviate from that advice.</p> <p>Maintains Government's ability to make decisions on policy, and to trade off outcomes across the economy and society.</p>	<p>The commitment to the long term goal under this option is not as strong as the decision making option.</p>
<p>Decision-making</p> <p>Commission makes decisions or sets policy under its own authority at arms-length from Government</p> <p><i>(Similar to our Commerce Commission)</i></p> <p>Note, no other countries have a Commission with a decision-making role.</p>	<p>Creates a very strong commitment to the long term goal by delegating decisions to an independent authority.</p>	<p>Decisions on climate change policy require trade-offs against a range of outcomes. Delegating decisions to an independent authority risks making progress on climate outcomes, while neglecting other social and economic outcomes.</p> <p>Delegating too much power to the Commission could risk susceptibility to changes by future parliaments. This could damage its stability.</p>

We propose that the Commission plays an advisory role (option two). This creates a new channel of independent public advice, and strikes a good balance between providing additional accountability, while ensuring governments are able to make decisions based on their own priorities.

Advisory and monitoring functions

We propose the Commission has the following advisory and monitoring functions:

- **Emissions budgets** - Advise on the most appropriate level and make-up of an emissions budget and monitor our progress towards achieving them.
- **Independent expert advice** – Provide independent advice on areas of the economy to focus and achieve emissions budgets and what's important to consider getting there.
- **2050 Target** – Periodic check-in on the target level in light of changes in technology, as well as accounting for what the rest of the world is doing. The Commission could advise the Government on the most appropriate level for the 2050 target. Please see the 2050 target section for more details.
- **Adaptation** - Monitor New Zealand's progress towards addressing the risks posed by climate change. Publish a report setting out progress towards delivering the National Adaptation Plan
- **International emission reductions** – advise on the extent to which international emission reductions should be used towards our targets

The Commission's role in the NZ Emissions Trading Scheme (NZ ETS)

We are seeking your views on what role the Commission should have with regard to the operation of the NZ ETS. The NZ ETS is a well-established tool that puts a price on emissions and supports New Zealand to meet its climate change targets.

A key finding of the most recent review of the NZ ETS is that current settings have created significant regulatory uncertainty. If the Commission had either an advisory or decision making role on the NZ ETS, it may help provide greater policy stability and predictability. This may result in more consistent long term signal to business to invest in low emission technologies and forestry.

The Commission could have an advisory role on the NZ ETS. This view is supported by two recent reports. The Draft Productivity Commission report on a low-emissions future suggested a Climate Change Commission could make recommendations on unit supply in the NZ ETS, based on evidence, for the government of the day to adopt, modify or reject.

"The Productivity Commission agrees that it is not appropriate for a Climate Commission to have decision-making powers. New Zealand's transition to a low-emissions economy will have profound and widespread impacts, and require the weighing of a range of economic, environmental, social and foreign policy considerations..... no government has so far been willing, or deemed it prudent, to transfer decision-rights on climate change mitigation matters to an independent body."

In addition, the Parliamentary Commissioner for the Environment (PCE) report *A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and Beyond (March 2018)* recommended that unit supply in the NZ ETS should be determined by the Government as part of its policy implementation responsibilities.

"Instead of giving the Commission a decision-making role, the Zero Carbon Act could require the Commission to provide advice prior to any change a Government might seek to make to ETS settings"

Another option is for the Commission to have a decision-making role with respect to the NZ ETS, such as the overall level of units supplied into the NZ ETS. This is likely to result in a highly independent NZ ETS, with a very clear role in reducing emissions. The Commission's decisions may also have the following outcomes:

- determining the overall cost to our economy of meeting our target
- setting the maximum emissions prices for NZ ETS businesses
- the emissions cost exposure for our emissions intensive and trade-exposed industries

These outcomes have implications for the emissions costs for businesses and households, the overall functioning of the New Zealand carbon market and on public finances. This may result the Commission having decision-making powers that have traditionally been associated with Government. This would need to be balanced with the advantages of the NZ ETS being managed with a high level of independence to support New Zealand meet its climate change targets.

WHAT THE NZ ETS DOES

The New Zealand Emissions Trading Scheme (NZ ETS) puts a price on greenhouse gas emissions by issuing a restricted volume of permits to emit into the market. The NZ ETS requires all sectors of New Zealand's economy to report on their emissions and, with the exception of emissions from agriculture¹⁸, to purchase and surrender emissions units to the Government for those emissions.

This creates a financial incentive for businesses to invest in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission Units (NZUs) as their trees grow and absorb carbon dioxide.

The NZ ETS was reviewed in 2015/16. There was a clear call from stakeholders to improve the stability and predictability of the scheme. As a result the Government has made in-principle decisions on a package of four proposals to improve the operation of the NZ ETS in the 2020s. The in-principle decisions are expected to be implemented in 2019 following further policy development and consultation later in 2018.

The in-principle decisions include: introducing auctioning of units, to align the NZ ETS to our climate change targets; limiting participants' use of international units when the NZ ETS reopens to international carbon markets; developing a different price ceiling to eventually replace the current \$25 fixed price option; and coordinating decisions on the supply settings in the NZ ETS over a rolling five-year period.

Design choices for a new Commission

What the Commission could consider when undertaking its work

It's important that the Commission undertakes all of its proposed functions in a transparent and predictable way. To do this, we propose that the Commission be required to consider a number of factors set out in legislation. The United Kingdom's Climate Change Act 2008 offers a useful precedent for what matters their equivalent Commission should take into account when undertaking its work. These include:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy

These considerations will help inform judgements on the level of emissions budgets, and the pace of our economic transition. In New Zealand we will need to take into account our own circumstances. This includes our obligations under the Treaty of Waitangi.

The Commission could also consider the three Government objectives for climate change policy: sustainable economy; global and local leadership and creating a just and inclusive society.

¹⁸ Methane and nitrous oxide.

The implications for the Government on the Commission's role and functions

The Zero Carbon Bill will propose new requirements on Government to respond to the reports of the Commission. Where the Commission provides advice, such as on the emissions budgets, Government would be required to take this into account and issue a public report in response. Where the government's actions differ from the advice of the Commission, these reports should outline why.

Where the Commission has monitoring functions, the Government would also be required to publicly respond to the Commission's monitoring report. Requiring the Government to do this within a timeframe of six to twelve months will provide additional accountability.

This accountability is important so New Zealanders can see how governments are planning for and addressing climate change issues.

What expertise should the Commission have?

We are seeking your views on the range of expertise that the Climate Commissioners should have. Based on the UK model we would expect 5-8 commissioners could bring a range of expertise. This is important as the credibility of the Commission depends in large part on its membership

We consider the essential expertise needed on the Commission includes:

- high level of standing in society
- sector experts as opposed to stakeholder representation
- climate change policy (including emissions trading)
- resource economics and impacts (including social impacts, labour markets and distribution)
- te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests *energy,*
- climate and environmental science including mātauranga Māori
- experience with addressing adaptation challenges like planning, insurance and local government
- risk management
- Engineering/infrastructure

Desirable, but non-essential, expertise could include:

- business competitiveness
- knowledge of the public and private innovation and technology development system
- economics
- community engagement

Including the expertise needed in the Commission in primary legislation aligns with the UK approach¹⁹ and the recommendation of our Parliamentary Commissioner for the Environment²⁰.

¹⁹ This approach also aligns with the UK's Climate Change Act 2008 set out in: <https://www.legislation.gov.uk/ukpga/2008/27/schedule/1>

²⁰ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

QUESTIONS

12. Should New Zealand have a new independent Climate Change Commission to provide an independent and expert role in New Zealand's response to climate change?

Pick one:

- Yes
- No

[Optional comment box]

13. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with the proposed list of core functions in this chapter?

Pick one:

- Yes
- No

[Optional comment box]

14. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Comment box]

15. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed list in this chapter?

[Comment box]

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Adapting to the impacts of climate change

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- Even with successful reduction of greenhouse gases, we will need to adapt to the impacts of climate change.
- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.

We propose that the Zero Carbon Bill includes the following adaptation provisions to help decision makers manage their climate change risks in a systematic way:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

We are seeking your views on:

- the scope, scale and content of the National Climate Change Risk Assessment and National Adaptation Plan.
- the respective roles of central government and the Climate Change Commission for each of the adaptation provisions.
- how an Adaptation Reporting Power should be used and who it should apply to.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form on page xx of this document, and online at [xx](#).

Increasing our resilience

Regardless of what level of ambition we set within a new Zero Carbon Bill, our climate will continue to change over the coming decades.

As a result, we will continue to face risks from rising sea levels and extreme weather, but also from slow changes to our ecology – our animals, plants and soils underpin not only the primary sector, but also human health.

The costs from climate change are already high, and growing. For example, in the last 10 years the cost of weather events to our transport network has increased from about \$20 million per year to over \$90 million per year.²¹ Reports from the Parliamentary Commissioner for the Environment indicate that the cost of replacing every building within half a metre²² of the spring high tide mark could be \$3 billion and within 1.5 metres, as much as \$19-20 billion²³.

²¹ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group; December 2017

²² The mid-range projected sea-level rise over the next 50 years is about 30 cm, and could vary between 20 and 50 cm. Note in the last 100 years seas have risen around 14-22 cm.

²³ "The RiskScape analysis in NIWA, 2015b shows that the replacement value of buildings within 50 centimetres of the spring high tide mark is \$3 billion and that of buildings within 150 centimetres of the spring high tide mark is \$20 billion." *Preparing New Zealand for Rising Seas: Certainty and Uncertainty: Office of the Parliamentary Commissioner for the Environment, New Zealand. 2015.*

PART THREE: Next steps

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. The Zero Carbon Bill won't get us through the transition by itself. We also need to continue with a strong emissions pricing regime through the NZ ETS, develop regulation and policy in areas to complement emissions pricing, and support innovation and investment in low emissions technologies.

We are not starting from scratch. Government has a number of existing initiatives alongside the Zero Carbon Bill, including:

- strengthening and improving the New Zealand Emissions Trading Scheme
- developing land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees, and
- establishing a Green Investment Fund to stimulate new investment in low-carbon industries.

Our towns and cities are also contributing. Regional and territorial authorities are improving their understanding of how to adapt to climate change and putting in place plans for low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. For example, it has worked with the dairy sector to develop the 'Dairy Action for Climate Change', helping farmers reduce emissions over time. The Low Emissions Roadmap with Fonterra is helping large energy users' transition off fossil fuels and onto renewable energy sources.

Your feedback will help shape the Zero Carbon Bill

Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill. The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. Later this year, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

Appendices

Table 5: Mitigation opportunities in key sectors where emissions reductions are possible

ENERGY	<p>The energy sector is experiencing rapid technological innovation and will play a huge role in the transition. For example:</p> <ul style="list-style-type: none"> • Electric Vehicles are already economic over the lifetime of the car in some roles and we can expect EV uptake will substantially reduce emissions, and higher public transport use. • Hydrogen fuel cell vehicles might also play a role, and/or advanced biofuels and similar technologies, particularly for moving freight. • Industrial process heat (e.g. milk and meat processing) holds potential to improve energy efficiency and switch to much lower emission fuels such as woody biomass or electricity. • Wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We still have extensive high-quality untapped renewable energy resources. • Energy efficiency improvements from the use of residential LED lighting and industrial scale plant modifications can reduce emissions directly or help lower costs of using cleaner energy sources.
AGRICULTURE	<p>A methane vaccine is under development to mitigate on-farm emissions in the dairy, sheep and beef sectors. Research and development may give rise to material on-farm abatement opportunities in the future.</p> <p>Land use change to lower-emitting uses will likely be needed to achieve material emission reductions from agriculture.</p>
FORESTRY	<p>Increasing our forested land area will play a huge role in soaking up more emissions, both commercial plantation forests and permanent native forests.</p> <p>Forestry helps buy us time until other technological developments or options become available, but we'll need continued emissions reductions post 2050 – beyond planting ever more trees – to maintain a low-emissions economy.</p>
INDUSTRIAL PROCESSES	<p>Efficiency gains in industrial processes (i.e. steel, cement, fertiliser etc.) will help as there are currently a limited number of available technology options.</p> <p>Industrial product-use sectors have viable alternatives, and improved management practices, that can markedly reduce the impacts of other high greenhouse gas potential products (e.g. improving refrigerant use and disposal).</p>
WASTE	<p>Waste can be a valuable resource, for example, Palmerston North's waste treatment plant anaerobic digestion of organic waste creates 'renewable methane' used to generate electricity.²⁷</p>

²⁷ Available at: <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

References

Author. Date. *Title of publication*. Place of publication: Name of publisher.

For example:

Ministry for the Environment. 2007. *Environment New Zealand 2007*. Wellington: Ministry for the Environment.

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Submissions form

We seek your feedback on the specific proposals in the Zero Carbon Bill.

New Zealand's action on climate change

s 9(2)(g)(i)



[Optional comment box]

2050 Target

3. Should a 2050 emissions reduction target be set in primary legislation under the Zero Carbon Bill?

Pick one:

- Yes
- No

[Optional comment box]

4. What process should the Government use to set a new emissions reduction target in legislation?

Pick one:

- The Government sets a 2050 target in legislation now
- Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.

[Optional comment box]

Draft Zero Carbon Bill discussion document and Cabinet paper

Comments from PS:

- ✓ This briefing attaches the Cabinet paper and draft Zero Carbon Bill discussion document that has been lodged for consideration by ENV on 22 May.
- ✓ The briefing also sets out the revised timeline for the Cabinet process and finalising the discussion document ahead of consultation from 7 June to 19 July.
- ✓ These documents will be discussed at your meeting with officials on Monday, 21 May.

Jemima



Comments from Advisor:

- i think the questions still need work in the discussion document.
- Q2 - cost - needs to be balanced with a question about opportunities & co-benefits.
- Q5 - reframe to: "if Ar2 is more ambitious than the status quo, what should the new target be?"

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04588
<u>Security Level</u>	In confidence	Number of Attachments #	1. Cabinet paper
Date Submitted:	18 May 2018	Response needed by:	
MfE Priority:	Urgent	Action Sought:	Noting

Draft Zero Carbon Bill discussion document and Cabinet paper

Key Messages

1. This briefing attaches the final Cabinet paper for consultation on the Zero Carbon Bill (Appendix 1). This in turn appends the latest draft of the discussion document.
The discussion document has been revised since you last saw it
2. We have continued to improve the overall readability of the discussion document; reducing its length, streamlining its contents, and incorporating your feedback. We will continue to refine the document in consultation with you and your office over the coming weeks, and the delegated group of Ministers following Cabinet consideration on 28 May.
We have also updated the Cabinet paper
3. In addition to changes suggested by your office, we have now incorporated the results of our economic modelling (see paragraphs 30 to 37).

Next steps

4. As agreed with officials on 16 May, the following process will apply to finalising the discussion document, and gaining Cabinet approval to consult.

Table 1. Updated Cabinet process for the Zero Carbon Bill

Milestone	Date
Draft discussion document and Cabinet paper lodged for consideration by ENV Committee	Friday, 18 May
ENV Committee considers the draft discussion document	Tuesday, 22 May
Officials incorporate feedback	Wednesday, 23 May – Friday, 25 May
Draft discussion document is lodged late for consideration by Cabinet	Friday, 25 May
Cabinet considers a revised discussion document, and approves release pending final changes approved by delegated Ministers	Monday, 28 May
Delegated group of Ministers approves final changes to the discussion document	Before 31 May
Group of Ministers meets between 31 May and 7 June to agree the economic narrative and common questions and answers	Between 31 May – 7 June
Discussion document released, consultation starts	Thursday, 7 June

Two public meetings are held	Before 14 June
Consultation roadshow begins	Thursday, 14 June
Consultation ends	Thursday, 19 July

Recommendations

5. We recommend that you:

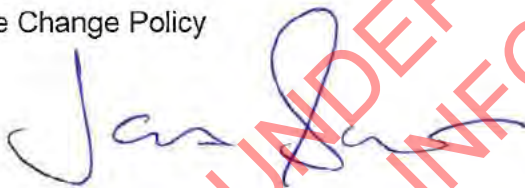
- a. **Lodge** the attached Cabinet paper and draft discussion document on 18 May Yes/ No
- b. **Meet** with officials on 22/23 May to discuss feedback from the ENV Committee Yes/ No

Signature



Janine Smith
Manager
Climate Change Policy

18-5-18



Hon James Shaw
Minister for Climate Change

20/5/18

Date

Ministry for the Environment contacts

Position	Name	Cell phone	1 st contact
Principal author	Jemima Jamieson	s 9(2)(a)	
Responsible Manager	Janine Smith	021 144 7617	✓
Director	Roger Lincoln	027 290 7625	

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04598
Security Level	In confidence	Number of Attachments	Nil
Date Submitted:	21 May 2018	Response needed by:	Noting
MfE Priority:	Non-Urgent	Action Sought:	Noting

Talking points for Cabinet Environment Energy and Climate Committee: Draft Zero Carbon Bill Discussion Document

1. You are taking a paper to the Cabinet Environment, Energy and Climate Committee on Tuesday 22 May. The purpose of the discussion is to seek feedback from Ministers on the draft discussion document for the Zero Carbon Bill.

Key messages

Good public consultation is essential to the success of the Zero Carbon Bill

2. This is about providing long term predictability to New Zealanders about our transition to a low emissions economy. Businesses are looking for this predictability.
3. To be successful, it is likely to need support across the political spectrum.
4. We are consulting for a 6 week period and will hold events around the country.
5. Interest is high: we have already received over 1,500 preregistrations for consultations.

The discussion document seeks the public's views on five key issues

6. **A new 2050 target.** The consultation document seeks feedback on a range of options, from the status quo ("50 by 50") through to achieving net zero emissions in 2050.
7. **A system of emissions budgets** to step us towards the 2050 target. The consultation document proposes three emissions budgets of five years each are in place at a given time, and seeks feedback on which budgets can be reviewed and adjusted, and what issues should be considered in setting budgets.
8. **A new Climate Change Commission** to keep us on track to the long term target. We are proposing the new commission advise Government, and monitor progress. We seeking the views of the public on this proposal, and on its role on the NZ ETS (policy advice, or decision making on unit supply in the scheme).
9. **The Government response.** We are proposing that the Government be required to produce a plan to achieve the emissions budgets, within a specified timeframe.
10. **A package to help us adapt to the impacts of climate change.** We are proposing a National Risk Assessment, a National Adaptation Plan and regular monitoring. We also seek views on a potential reporting power, which could see organisations that provide public services reporting on their exposure to climate risks.

Economic modelling will help inform our choice on the new target

11. Modelling indicates that our economy should continue to grow out to 2050 where we meet a net zero emissions target, but more slowly.
12. The models are stretched to their limits looking as far out as 2050, but they are important tools to help inform our choice.
13. The modelling shows that some sectors (and therefore regions and communities) will be affected more than others. But other sectors could emerge.

14. Lower income households could feel the impacts of domestic climate action more strongly than others.
15. We have choices about how we transition, and how we manage these impacts across the country.
16. The models don't take account of many of the potential benefits of acting on climate change. This includes new jobs being created as the economy changes, being ready to take new opportunities in the low carbon economy as they arise, and co-benefits such as lower health costs as a result of cleaner air.

The Zero Carbon Bill is one part of the transition story

17. The Zero Carbon Bill will establish the laws and institutions to support us to reduce domestic emissions and adapt to the impacts of climate change. The bill will need to be supported by emissions pricing, regulation and policies in other areas, and support for innovation and investment.

What happens next

- Cabinet considers a revised discussion document on 28 May
- Delegated Ministers approve any final changes by 31 May, and agree the economic narrative and Q&A material for Ministers
- Consultation begins on 7 June.

Signature

Janine Smith
 Manager
 Climate Change

Hon James Shaw
 Minister for Climate Change

Date

Ministry for the Environment contacts

Position	Name	Cell phone	1 st contact
Principal author	Lewis Stevens		
Responsible Manager	Janine Smith		
Director	Roger Lincoln		

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From: [Robin Campbell](#)
To: [Tamara Linnhoff](#)
Cc: [Sarah Deblock \(Parliament\)](#); [Janine Smith](#); [Edward Hearnshaw](#); [Paul Alexander](#)
Subject: RE: Modelling wider benefits - Q from PM's office
Date: Tuesday, 22 May 2018 9:39:58 AM

Thanks – that's very helpful :)

From: Tamara Linnhoff [mailto:Tamara.Linnhoff@mfe.govt.nz]
Sent: Tuesday, 22 May 2018 9:38 AM
To: Robin Campbell <Robin.Campbell@parliament.govt.nz>
Cc: Sarah Deblock <Sarah.Deblock@parliament.govt.nz>; Janine Smith <Janine.Smith@mfe.govt.nz>; Edward Hearnshaw <Edward.Hearnshaw@mfe.govt.nz>; Paul Alexander <Paul.Alexander@mfe.govt.nz>
Subject: RE: Modelling wider benefits - Q from PM's office

OK. I've added a few more details to the below – will stop at that
 Tamara

The analysis of the economic impact of targets has considered the benefits of taking action.

These potentially positive impacts of climate policy could arise via

- Higher innovation rates – in industries facing emissions carbon prices, and new innovation growing the lower-emissions sectors
- Wider co-benefits (such as less time wasted in congestion, better health through active transport and better air quality, and wider environmental co-benefits on biodiversity and water quality.
- A reduced level or frequency of damage by a changing climate on New Zealand infrastructure, homes and businesses (eg fewer storms) is also counted as a co-benefit. However this positive impact depends on the rest of the world acting too to slow temperature rise.

The above co-benefits don't feed directly into the whole-of-economy modelling at this pre-consultation stage. This is because widening the whole-of-economy modelling to take this wider perspective has not been done before in New Zealand, and was judged by the consultants to be too complex an exercise to manage with any robustness, in the time that has been available pre-consultation.

So adding innovation and 'reduced damage' benefits into the whole-of-economy modelling is planned for stage 2, which starts next week and will be ready pre-final cab decisions on the Zero Carbon Bill. Adding in the wider co-benefits is likely to remain too precarious and so will be considered separately.

The NZIER modelling is not intended to tell the 'whole' story of the impact analysis, rather it's the overall story told by all the economic impact studies combined that we use to indicate overall impact.

Officials are drafting an Economic Analysis Technical Report to underpin the impact analysis presented at a high level in the Discussion Document. This technical report will contain more information on all aspects of the research and modelling, and will be released during the consultation period. The expert reports on individual pieces of research or modelling will also be released.

Tamara

From: Robin Campbell [mailto:Robin.Campbell@parliament.govt.nz]
Sent: Tuesday, 22 May 2018 9:24 a.m.
To: Tamara Linnhoff
Cc: Sarah Deblock (Parliament); Janine Smith; Edward Hearnshaw; Paul Alexander
Subject: RE: Modelling wider benefits - Q from PM's office

Thanks Tamara. What you've said below sounds like a fairly comprehensive and concise response – don't feel the need to provide further bullet points if they won't add anything new to what's below.

From: Tamara Linnhoff [<mailto:Tamara.Linnhoff@mfe.govt.nz>]
Sent: Tuesday, 22 May 2018 9:22 AM
To: Robin Campbell <Robin.Campbell@parliament.govt.nz>
Cc: Sarah Deblock <Sarah.Deblock@parliament.govt.nz>; Janine Smith <Janine.Smith@mfe.govt.nz>; Edward Hearnshaw <Edward.Hearnshaw@mfe.govt.nz>; Paul Alexander <Paul.Alexander@mfe.govt.nz>
Subject: Modelling wider benefits - Q from PM's office

Thanks Robin,

We have researched the benefits of taking action - the impact of climate policy on:

- Innovation rates
- Wider co-benefits (congestion, health, air and water quality)
- Reducing the damages cause by climate (eg storms) – if the rest of the world acts too.

These benefits don't feed into the whole-of-economy modelling at this stage yet – widening the whole-of-economy model to take this wider perspective has not been done before, and was judged by the consultants to be too complex an exercise to manage in the time that has been available pre-consultation.

So adding innovation and 'reduced damage' benefits into the whole-of-economy modelling is planned for stage 2, which starts next week and will be ready pre-final cab decisions on the Zero Carbon Bill.

Ed and I will prepare some bullets for you before 2pm.

Tamara

Tamara Linnhoff | Principal Analyst, Transition Hub, Climate Change | Ministry for the Environment – Manatu Mo Te Taiao
Phone: **s 9(2)(a)** | Email: tamara.linnhoff@mfe.govt.nz
I usually work 8.15-4pm Tues & Weds, 9.15-5.30 Mon & Thurs, not Fridays

From: Robin Campbell [<mailto:Robin.Campbell@parliament.govt.nz>]
Sent: Tuesday, 22 May 2018 9:14 a.m.
To: Sarah Deblock (Parliament); Janine Smith; Tamara Linnhoff
Subject: modelling request

Hi team

The PM read the ZCB documents over the weekend and has asked why we didn't model the benefits of taking action. Her office has asked for a written response asap.

I am happy to put this together if necessary, but won't have time until 2pm so please could you send me through any bullet points you think are important before then?

Thanks,
Robin



Robin Campbell | Ministerial Advisor

Office of Hon. James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance | Green Party Co-leader

7.03 Bowen House, Parliament Buildings, 80 Lambton Quay | Private Bag 18041 | Wellington 6160 | Aotearoa New Zealand

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From: [Robin Campbell](#)
To: [Janine Smith](#)
Cc: [Sarah Deblock \(Parliament\)](#)
Subject: FW: Public Consultation on the Zero Carbon Bill
Date: Tuesday, 22 May 2018 3:07:27 PM

Hi Janine

Feedback below from Hon Sage on the ZCB discussion document. I think it should be relatively easy to incorporate her views in the document.

Thanks
Robin

Robin Campbell
Office of Hon. James Shaw
s 9(2)(a)

From: Teall Crossen <Teall.Crossen@parliament.govt.nz>
Date: Tuesday, 22 May 2018, 8:55 AM
To: Robin Campbell <Robin.Campbell@parliament.govt.nz>
Subject: Public Consultation on the Zero Carbon Bill

Kia ora Robin,

As discussed, please see Minister Sage's comments on the Zero Carbon Bill consultation.

- Mitigation of climate change impacts has an environmental component, including the seas and forests which we are relying on to sequester and store carbon.
- The discussion document does not sufficiently reference the need for adaptation policy to include explicit consideration of how species, habitats and ecosystems will be affected by climate change. Some ecosystems such as coastal wetlands need to be given space to migrate, which may conflict with infrastructure.
- Conservation will have adaptation goals as well, as some species and habitats will need to move to, or be moved to, new locations where conditions remain suitable for their survival

Key Points:

- The paper should give greater acknowledgement to the role of nature and ecosystem services in climate change mitigation, such as carbon

storage in forests.

- It should also acknowledge the need for work to help ecosystems and biodiversity to adapt to climate change, and ensure they are not negatively affected by other adaption decisions (e.g. coastal defences).

Naku noa, na

Teall Crossen | Senior Ministerial Advisor

Office of the Honourable Eugenie Sage

Minister of Conservation, Minister for Land Information

Associate Minister for the Environment

s 9(2)(a) | Email teall.crossen@parliament.govt.nz

Te Whare Paremata, Te Whanganui-a-Tara 6011, Aotearoa

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From: [Janine Smith](#)
To: [Zoe Mack](#); [Cat Wilson](#)
Subject: FW: Updated consultation document
Date: Friday, 25 May 2018 7:39:08 AM
Attachments: [Zero Carbon Bill - Working Draft Discussion Document 24 May 2321.doc](#)
[18-B-04612 - Zero Carbon Bill Discussion Document and Cabinet paper.docx](#)
[2018-C-04420 - Public consultation on the Zero Carbon Bill .doc](#)
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[image003.png](#)
[image004.png](#)
Importance: High

From: Janine Smith
Sent: Thursday, 24 May 2018 11:28 p.m.
To: 'Robin.Campbell@parliament.govt.nz'
Cc: Sarah Deblock (Parliament); Penny Nelson; Roger Lincoln
Subject: Updated consultation document
Importance: High

Hi Robin

As discussed updated version attached for your review.

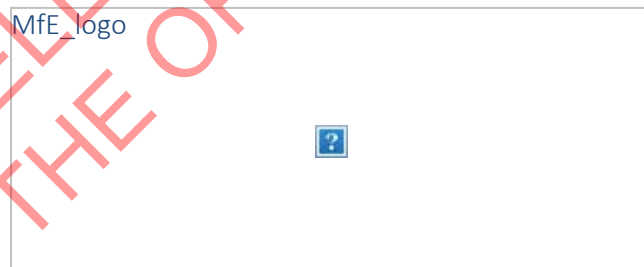
Comments ASAP

Happy to discuss

Thanks

J

Janine Smith – Manager, Climate Change Policy
Ministry for the Environment – Manatu Mo Te Taiao
Mobile: 021 144 7617 Email: Janine.Smith@mfe.govt.nz Website: www.mfe.govt.nz
No.3 The Terrace, PO Box 10362, Wellington 6143



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Our Climate Your Say

DRAFT 24 May 2018

Consultation on the Zero Carbon Bill

New Zealand Government

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This document may be cited as: Ministry for the Environment. year. *Title of publication*. Wellington: Ministry for the Environment.

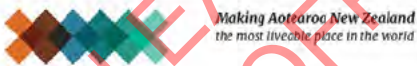
Published in month year by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: ISBN print version (print)
ISBN online version (online)

Publication number: ME xxxx

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How to use this document

You have a part to play in deciding how New Zealand responds to climate change.

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Finding your way around the document

- We have produced a standalone **Executive Summary** – which includes background information, a summary of the proposals in the Zero Carbon Bill, and next steps
- This summary is followed by the full discussion document, which contains three parts:
 - Part One – Introduction**
 - o Outlines what climate change is, the impact it is having and our local and global context
 - Part Two – Proposals for the Zero Carbon Bill**
 - o Sets out the proposals for the Bill, including the targets and the stepping stones to meet them, the Climate Change Commission and how we can plan to adapt.
 - Part Three – What happens next?**
 - o Contains information about the upcoming events, meetings and hui, and details the process for developing, finalising and implementing the Zero Carbon Bill.

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Questions/feedback

- We welcome your thoughts and feedback.
- The Consultation Form can be found at the back of this document, and for your convenience, can be filled in online at [insert link].
- Submissions must be lodged by [xx date].
- Submissions can be:
 - o completed online at [insert link]
 - o emailed to [insert address]
 - o posted to [insert address]
- Submissions should include the following details:
 - o The title of the consultation Zero Carbon Bill
 - o Your name or organisation name
 - o Your email address, postal address and phone number.

Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name. Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission, including commercially sensitive information, and in particular which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this document under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

For more information

- Visit the Online Engagement Portal at [insert link]
- Ask the Zero Carbon Bill team at [insert email address]
- Attend one of the events and hui being held around the country and online.

Message from the Minister

Over the past summer many New Zealanders have experienced the changing climate in our everyday lives. The seas we swam in were warmer than anyone could remember. We had months of almost uninterrupted spectacular weather.

I say 'almost' uninterrupted because it was interrupted by a severe storm in January and two Pacific cyclones in February – Gita and Fehi. Roads were washed into the sea in Coromandel, Auckland's Tamaki Drive was flooded (again), and Golden Bay saw huge landslides and damage to crops.

New Zealand has always had dramatic weather. But the frequency and the severity of storms, coastal and river flooding, droughts and wildfires, is increasing. These will continue to increase as long as people continue to add large amounts of greenhouse gases into our atmosphere.

The costs to us are also increasing. We are seeing lost agricultural production, flood clean-up costs, sea-wall and road reconstruction, and so on. Insurance companies and banks are re-thinking their risk profiles and premiums for coastal homes and businesses.

All of this sounds like a lot of bad news – but we now have many of the tools that we need to fix it. And in doing so, we can bring an extraordinary opportunity to upgrade our economy, not just to be 'clean and green', but also more productive and better paid.

There is a new industrial revolution taking place. This is happening, particularly in energy and transport, but also in every other sector of the economy, including agriculture.

Those leading the way are developing intellectual property, new technology and the products and services of the 'low-carbon economy'. Those that do not lead are letting the opportunity pass them by.

In New Zealand, investment has been held back by the lack of a clear position on climate change or any signal about the direction we want the economy to go in. Will we stick with our current reliance on traditional (and high pollution) technologies and products? Or will we commit to replacing those technologies with new, clean ones?

The Zero Carbon Bill is designed to create certainty. It is intended to provide a long-term and stable policy environment, with a clear emissions target and a guided pathway to get us there.

That certainty will drive investment in new industries and create new jobs to upgrade our economy. We have opportunities to increase our renewable electricity generation, plant more trees, invest in new technologies, continue our world-leading research into reducing emissions on our farms, and support the growing Māori economy.

The transition ~~is achievable, although very challenging. It~~ will affect every sector of the economy, but the change will be more far-reaching in some than others.

For that reason we are absolutely committed that this transition will be planned, gradual and carefully phased in. We have had other transitions before, which were not well managed and led to displacement and upheaval. For this to work, we need to make sure we bring everyone with us and leave no one behind.

Cast your mind back thirty years, to 1988. The Internet didn't exist, at least not in its current form. But try to imagine running your school or your farm or your bank without the Internet today. It has transformed every aspect of the economy – and our lives. It has been disruptive, and it has also created tremendous opportunity, and whole new industries.

A planned transition over time gives us the best chance of minimising the negative social and economic impacts of change so it is just and fair for people, communities, and regions. The longer we leave our planning, the more abrupt and difficult change will be. We want to avoid that risk.

We are not starting from scratch. Nearly ten years ago, the then Prime Minister [Rt Hon John Key](#) made a commitment to halve our emissions by the year 2050, and we've taken the first steps towards that.

But in 2015 we, alongside almost all countries in the world, decided that the world should achieve net-zero greenhouse gas emissions by the second half of this century through the Paris Agreement. This Government has committed to setting a 'net zero' target by 2050. We seek your views on what this target should look like during this consultation.

Setting a new long-term target will be a clear signal of our commitment to the Paris Agreement, including its collective goals and our own national targets. Our implementation journey has begun. Many of New Zealand's largest businesses have already gone 'carbon neutral', and many others are working on it.

Now is the right time to set a [long-term](#) target of net zero [emissions](#) and put in place the institutions and the strategy to reach it. At its core, this is what the Zero Carbon Bill does.

With this challenge comes opportunity. Together we can build a more sustainable economy that ensures future New Zealanders can prosper.

I invite you to be part of the conversation.

Hon James Shaw
Minister for Climate Change

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Executive Summary

The Government is committed to acting on climate change. We want to build a more sustainable economy that is better for the environment, creates jobs, and improves New Zealanders' lives. We also want to show global leadership through demonstrating to other countries that we can make New Zealanders better off while taking action to reduce our impact on the climate. In doing this, we will encourage others to act¹.

Countries around the world emit greenhouse gases from activities like driving cars, farming, ~~and~~ burning coal, and deforestation. There has been a big increase in human-made greenhouse gases, causing the global climate to change rapidly.

Each year, we are seeing more and more extreme weather events. Seas are rising. Our regions, businesses and communities have already seen costly damage and disruption. We are paying more to repair our roads and railways and to keep other vital infrastructure running. These impacts and costs will increase over time.

In 2015, almost every country ~~around the world~~ decided to take action together to address climate change by signing the Paris Agreement. It sets the world on the path to 'net zero' emissions by the second half of the century. 'Net zero' means emissions we create are no greater than what is removed from the atmosphere, from things like forests soaking up carbon dioxide. Countries around the world are already making changes and will continue to in the years to come. The global economy will look very different by 2050 as a result.

Although New Zealand's share of global emissions is very small (0.17 per cent), countries like us make up around 30 per cent of global emissions. New Zealand's per capita emissions are high compared to similar economies in the Organisation for Economic Co-operation and Development (OECD).

Many other countries have already set long-term emission reduction goals. For example the European Union and the United Kingdom both aim to reduce emissions by 80% of 1990 levels by 2050. Canada aims to reduce its emission by 40% in 2050 (relative to 2005 levels). Norway, Sweden and Portugal are seeking to achieve emissions neutrality or near neutrality by 2050 or earlier.

The Zero Carbon Bill is an opportunity for New Zealand to decide how we deliver our part in the global effort while encouraging action by others. It puts a new target in legislation that gives us certainty about our long-term goals. It can create the institutions to help us get there and will hold us to account. It can also put in place the plans we need to respond to the growing impacts of climate change. We want New Zealanders to help us decide the shape and form of this Bill.

Why we should start now?

With action comes opportunity. By setting a long term target our economy will have time to adjust and upgrade our economy. In 2011, New Zealand committed to reduce emissions by 50% below 1990 levels by 2050. Signing the Paris Agreement commits us to increasingly more ambitious targets over time. Taking a fresh look at our 2050 target will bring us further in line with the global ambition.

¹ The Government's objectives for climate change action are a sustainable economy, global and local leadership and creating a just and inclusive society.

Over 30 years New Zealand's economy will change, just as it has over the last 30 years. Taking ~~ambitious~~ action in New Zealand now means that we can:

- reduce potential for sudden, drastic economic shocks
- gain an economic advantage as an early mover in emerging markets
- get the most from wider benefits like cleaner air and water and better health
- hold ourselves and other countries to account to meet international commitments.

Other countries will also be making changes to their economies at the same time. For New Zealand to benefit as a developer of new technology and an early taker of new technology we will need to challenge ourselves to build a high value economy, and countries will be able to cooperate and learn from each other. This is a chance to showcase our innovation.

Other benefits from the transition

A move to a zero emissions economy that is resilient to climate change will deliver health and environmental benefits. The air we breathe will be cleaner. More people catching buses and trains more often would reduce congestion in our cities. Better insulation in homes for energy efficiency reduces heating bills and leads to health cost savings and a higher quality of life as houses are warmer, drier and healthier than they are now.

More forestry, in the right places, will improve the health of our birds, fish and plants. It would also improve water quality in our rivers and lakes and prevent erosion. Stronger climate action can also drive faster innovation as people find new solutions to old problems.

Much of the Māori economy is involved in natural resource management including forestry, agriculture and fisheries. There will be opportunities for the Māori economy through the transition.

What the transition to zero emissions economy could look like

There are plenty of ways we can take action. We can increase renewable electricity generation, plant more trees, invest in new technologies, shift our cars and trucks to electric and invest in public transport. We can also continue our world-leading research exploring how to reduce emissions on farms.

Our economy is already dynamic and constantly adjusting to change. Jobs are continuously created and lost. The yearly job creation rate in New Zealand is about 15 to 18 percent while the rate of job disappearing sits between 12-15 percent². The changes required to transition to net zero sit alongside existing levels of churn.

E

For some of us the changes through the transition, the changes could be small or not noticeable. For others, particularly rural communities, the changes could be bigger. We could see changes in how we travel, use land and in what we produce and consume. More, with more land will be given over to planting trees to soak up carbon dioxide.

We commissioned independent modelling to look at the impact of moving to a low emissions economy. Each model has different strengths and weaknesses. It's uncertain how the future will unfold. Change will happen across all parts of our economy. However, there are common themes.

- As we reduce emissions, the economy continues to grow but less quickly. For example, based on mid-range results, if we make ambitious efforts to become a net zero emissions economy, GDP is estimated to grow by 1.9% percent every year. This is compared to

² Procutivity Commission Draft report. Page 2010

an estimation of growing at 2.2 percent³ every year if we don't didn't take measures to reduce emissions.

- We need to invest in innovation and plant a lot more trees to ensure we maintain a strong economy over the coming decades.
- If we set a zero emissions target some sectors and industries will decline or change and new sectors will emerge, creating new jobs. Businesses with high emissions will face challenges if they don't reduce them. The make-up of the workforce in some regions could change as a result.
- Low income households are likely to be more affected financially.

Recent analysis also suggests that limiting global warming to 1.5 degrees Celsius instead of two degrees Celsius by mid-century could lead to an increase in global GDP of 1.5 to 2 per cent and avoid damages from climate change globally of approximately \$11 trillion to \$16 trillion³.

Change isn't new. Our agriculture sector has responded to constant land use and other change over the past 70 years, and as a result, we are considered leading edge, globally.

Commitment to a fair and inclusive transition

A planned transition over time gives us the best chance of minimising the impact on our jobs and livelihoods so it is just and fair for all New Zealand communities and regions. The Government is committed to this. Incorporating Te Ao Māori and kaitiakitanga ('guardianship') in our approach, as well as working with industry, across the agriculture, forestry, energy and transport sectors will help to get the transition right.

This could include training and upskilling people into new low emissions jobs, and managing the timing of when policies would take effect. The Government has a broader work programme already underway looking into what else we need to plan for to ensure a whole of government response to supporting vulnerable regions, workers, and communities given potential changes in the economy.

Preparing for the change, and investing in our progress will make the transition less disruptive.

What drives a smooth transition?

A recent report from the Productivity Commission identifies the core building blocks to a low emissions future: emissions pricing; laws and institutions; regulations and policies; and the right innovation and investment settings. New Zealand is already making progress on these. For example, New Zealand was one of the first countries in the world to set up an emissions trading scheme.

~~The~~ ~~The previous and current~~ Parliamentary Commissioners for the Environment and the Productivity Commission both recommend that the next step is for the Government to set out the laws and institutions for a low emissions future, like as other countries have. The Zero Carbon Bill responds to these recommendations by proposing to:

- set targets for our emissions
- introduce the stepping stones (or budgets) to reach these
- set up the institutions to provide independent, expert advice and hold governments to account
- better understand the risks and to plan how we adapt to climate change.

³ The avoided damages is calculated using a 3% discount rate, and mid-century refers to the period between years 2046 to 2065 and has published in the journal Nature

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These core building blocks will give certainty to New Zealanders that no matter what Government is in power there will be a long-term approach to climate change that endures political cycles.

What the Zero Carbon Bill could do

This Bill sets the long term commitment to transition us to a low-emission, climate resilient economy. It puts in place the core building blocks that will give New Zealanders certainty that, no matter what Government is in power, a long-term approach will endure

A 2050 emissions reduction target

A new 2050 target in the Bill would provide more certainty about the direction for the transition. Many other countries have already set ambitious long-term emission reduction goals. The EU and the UK both aim to reduce their emissions by 80% of 1990 levels by 2050. Canada is also aiming to reduce its emission by 80% in 2050 (relative to 2005 levels). Norway, Sweden and Portugal are seeking to achieve neutrality, or near-neutrality by 2050 or earlier.

We want to hear your views on which net zero target is the right one for New Zealand.

- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050 (but not other gases like methane or nitrous oxide, which predominantly come from the agriculture sector).
- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce emissions of long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising emissions of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

Each target has different implications for our climate and economy. Modelling suggests under any target there will be significant increases in new forest planting and emissions reductions in transport and energy, as well as changes in how we use our land.

We also want to hear your views on:

- ~~the role the Climate Change Commission could have in setting the target. The Parliamentary Commissioner for the Environment recommends putting the Paris Agreement goal (net zero emissions by mid-century) into the Bill and for a new Climate Change Commission to decide the specific target later. This would allow us to get the independent advice from expert Commissioners before setting a specific target in law before setting a target in law.~~
- Buying international emissions reductions from other countries with high environmental integrity to meet a small portion of our target. ~~This could may also be worth considering. Although this may be a cheaper option in the short term, but it would mean less investment in reducing domestic emissions. Emissions.~~

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The emissions budgeting system

2050 is a long way away. To give more predictability for business, emissions budgets are a necessary part of the Bill as they set out how many emissions we can emit over a period of time, for example five or six years.

There are a number of choices around how we design this system and we want to hear your views. For example, the duration of each budget, how far in advance we set them, whether they can be revised and what happens if they are not met.

An independent Climate Change Commission

We propose the Zero Carbon Bill establishes a new Climate Change Commission. This would provide independent, expert advice and support New Zealanders to hold successive governments to account for progress.

We propose the Commission advises the Government on the level of emissions ~~stopping stones~~ budgets to reach the target, and we also have a choice to make around the specific role the Commission could have with the New Zealand Emissions Trading Scheme.

~~An~~ The Interim Climate Change Committee has ~~been~~ already been ~~established~~ set up to work on how we manage agricultural emissions and how we get to 100 per cent renewable electricity. The Interim Climate Change Committee will be leading on these issues outside of this consultation process and will develop analysis and evidence on these key issues. The new Commission would advise Government on these issues once the Zero Carbon Bill passes into law.

Adapting to the impacts of climate change

Even if we can reduce greenhouse gases globally, we will need to adapt to the impacts of climate change ~~that are already locked in, from past emissions~~. The Zero Carbon Bill could help decision-makers manage ~~their~~ climate change risks in a systematic way. ~~We could~~ The Bill could require the Government to develop a national adaptation plan that prioritises actions based on a regular risk assessment. We also want to explore whether a targeted adaptation reporting power might be set up. This could see some organisations share information on their exposure to climate change risks.

Your feedback will help shape the Zero Carbon Bill

We welcome your feedback on the proposals contained in the consultation document, which will help inform further policy development, and shape what will become the Zero Carbon Bill. Later this year the Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the New Zealand Emissions Trading Scheme and help us implement the Paris Agreement.

Public consultation on the NZ ETS will be undertaken through a separate process in August – September this year.

PART ONE: Introduction

» He mōkōpuna he tūpuna. «

SUMMARY

Our climate is already changing, and our economy needs to respond as part of a global transition to a net zero emissions, climate-resilient future. This will require a fundamental economic shift in New Zealand.

As we have seen from transitions in the past, such as the industrial and digital revolutions, economic transitions can create challenges – but also opportunities. Taking early action in the right areas is likely to avoid the need for more abrupt action later.

We are fully committed to the emission reduction goals embodied in the Paris Agreement. As New Zealanders, we need to make decisions about how we transition our economy, how far and how fast we go, and how we do it in a way that is fair, just and timely.

This is not just about the next three years, or the next six, but a decision that affects our collective long-term futures. What we decide must endure political cycles, whilst enabling successive Governments to make policy choices within a robust, transparent and lasting framework.

The Zero Carbon Bill can deliver the long-term goal and direction, and set up the right architecture to achieve a net zero emissions, climate resilient future. This is a critical conversation to have now, and we invite you to be part of it.

Background

What is climate change?

The Earth’s atmosphere is made up of a large amount of nitrogen (78%), oxygen (21%) and a small amount of greenhouse gases (including carbon dioxide, methane, and nitrous oxide). Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze. But increasing greenhouse gases in the atmosphere traps more heat and causes the climate to change.

Over the past 200 years there has been a big increase in human-generated greenhouse gases from activities like burning fossil fuels, farming, and cutting down forests.⁴ The global climate is changing rapidly compared to natural variations in the past. The world has already warmed about 1 degree Celsius since 1900, and the increase in greenhouse gases is the main reason for this. The temperature will continue to rise and if we don’t dramatically curb emissions, the risks of harmful impacts on people and ecosystems will increase.

⁴ Trees act as a ‘carbon sink’—a natural storage area—for carbon dioxide by absorbing or ‘sequestering’ it over time through the process of photosynthesis. This means that when areas are deforested, the carbon dioxide stored in those trees is released into the atmosphere.

The impact of climate change so far

We are already feeling the impacts from a changing climate. In the last 100 years seas have risen around 14-22cm in New Zealand ports. More recently we have suffered costly damage and disruption from coastal erosion, more frequent and severe weather events (flooding, droughts and wildfires) and damage to infrastructure and assets. This includes damage to sites of significance to Māori. Many Māori communities have ancestral ties with coastal areas with cultural heritage – marae, wāhi tapu, and mahinga kai rohe.

The costs we face are continuing to rise. As an example, in the past 10 years the cost of weather events to our transport network have risen from about \$20 million per year to over \$90 million per year.⁵

The Paris Agreement

New Zealand signed the Paris Agreement two years ago. It sets out the international plan to put the world on track to avoiding dangerous climate change. It has been a game-changer - the world is now committed to a low emissions future.

The Paris Agreement says the world will:

- keep the increase in global average temperature to well below 2°C above pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5°C, with an aim to reach peaking of global greenhouse gas emissions as soon as possible and to reach net-zero emissions by the second half of the century
- enhance the ability of countries to adapt and reduce vulnerability to the adverse impacts of climate change
- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient economies.

Our first target under the Paris Agreement is to reduce greenhouse gas emissions to 30 percent below 2005 levels by 2030 (11 percent below 1990 levels). See our [current targets](#) for our full-list of emission reductions targets.

The Paris Agreement sets out developed countries' role in the transition and says they should "continue taking the lead by undertaking economy-wide, absolute emission reduction targets". More detailed rules are due to be finalised this year. As a small country our influence lies in holding ourselves and other countries to account to meet international commitments.

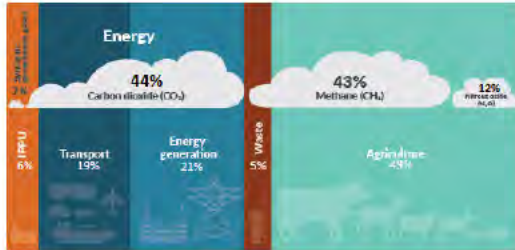
What do our emissions look like?

A large part of our economy is based on primary industries. Agriculture makes up nearly half of all emissions in New Zealand (Figure 1). Its share of the national total is, on average, four times larger than our OECD peers.

Most of New Zealand's electricity (about 80%) is currently generated from renewable sources like wind and hydro. The Government has committed to making electricity 100% renewable by 2035. We also have a sizeable forestry sector which currently offsets about a third of our gross emissions.

Figure 1: Emissions profile of New Zealand (updated image coming)

⁵ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017



Source: New Zealand Greenhouse Gas Inventory 1990-2016. Ministry for the Environment. Note: Percentage may not add up to 100% as they are rounded to the nearest percent. IPPU stands for Industrial Processes and Product Use.

For more information on New Zealand's emissions profile, visit our website and look at the [emissions inventory](#) and [emissions tracker](#).

Where are we starting from

The Zero Carbon Bill will build on the progress New Zealand has already made on our international commitments and our Emissions Trading Scheme. It also builds on the steps many businesses and sectors have taken to reduce emissions and choices people are already making on how they get around and the products they buy.

Our towns and cities are also contributing. Regional and territorial authorities have a good understanding of how to adapt to climate change and some are putting in place plans for creating low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. Many businesses have their own emissions reductions plans in place and are taking innovative steps to achieving their emissions reduction goals.

The work to transition is already underway. Some specific initiatives include:

- strengthening and improving the New Zealand Emissions Trading Scheme (NZ ETS)
- developing a land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees
- establishing a Green Investment Fund to stimulate new investment in low-emissions industries.
- continuing to develop practical solutions in the agriculture sector where New Zealand is already a world leader, such as animal breeding and vaccines to reduce methane.

MĀORI AND IWI LEADERSHIP IN THE TRANSITION

‘Toitū te Marae o Tāne, Toitū te Marae o Tangaroa, Toitū te Iwi - When land and water are sustained, the people will prosper’

There are opportunities for iwi and Māori-owned businesses to show leadership in the transition. Te Ao Māori and kaitiakitanga underpins leadership that can drive positive change. There will be opportunities for the Māori economy through the transition; however, there will also be challenges. For example, Te Ture Whenua Māori Act 1993 has implications for how that land can be used and is governed⁶

As an example of a leading iwi-run farm, Ngāi Tahu Farming, applies advanced best-practice land and water use across the nearly 100,000 ha of dairy, sheep and beef farms and forestry land it manages in Te Waipounamu (South Island). It is focusing on reducing greenhouse gas emissions through collaborative research and on-farm practices including tree planting to create carbon sinks. It has been able to reduce stock while improving productivity. Ngāi Tahu Farming General Manager Shane Kelly believes the agriculture sector will play an important part in New Zealand’s shift to a net zero emissions economy, advocating a collaborative and staged process. Farmers are looking for direction and leadership, he says. “We all want to look after our environment and we need to work collaboratively as a nation. It’s a huge opportunity, the question is, how do we make this work together as a nation?”

⁶ Note, Māori freehold land (which makes up 1.4 million hectares) has three unique characteristics which are difficult to alter. It comprises mainly small blocks with only a small proportion of arable land, it is subject to cultural importance to current and future generation, and it has individual, yet multiple owners.

PART TWO: Proposals

The transition we have begun will need to be deep and broad. We have choices around how far and how fast we go. For each choice we make, there will be opportunities and challenges. If we act now, our actions could:

- reduce the potential for sudden, drastic economic shocks
- get the most of the wider benefits in health and across the environment (eg, cleaner water and air)
- avoid further damage caused by a changing climate (assuming the world continues to act in the same way)
- drive faster innovation and productivity improvements
- keep our small, export-led economy competitive
- meet growing consumer demand for low emissions products and services and reduce sunk costs in infrastructure and other large-scale assets
- benefit from mātauranga Māori (traditional knowledge) and Te Ao Māori (the Māori world view) through our Treaty partnership.

Some of the challenges we will face include:

- there's a possibility that GDP will grow more slowly
- significant changes to our energy and transport and agriculture sectors
- some industries will experience decline while others emerge, with implications for some jobs and regions
- vulnerable communities could be harder hit
- moving too early could affect the competitiveness of our trade exposed businesses. This risks 'emissions leakage'⁷

The Zero Carbon Bill aims to set the country's long term commitment and provide transparency about what future policies we intend to use to achieve this. We are seeking your views on:

1. 2050 targets
2. Emissions budgets
3. Climate Change Commission
4. Adapting to the impacts of climate change

These core building blocks will give certainty to New Zealanders that, no matter what Government is in power, there will be a long-term approach that endures political cycles. Independent and expert institutions will keep governments well-advised and up-to-date on the science and help people hold politicians accountable. This work will be guided by the following objectives:

- **Sustainable and productive economy:** Continuing to grow and diversify the economy, while limiting greenhouse gas emissions and responding to the impacts of climate change.
- **Global and local leadership:** Leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the key way for New Zealand to influence the global climate action response
- **Creating a just and inclusive society:** Managing the pace of the transition, and supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

⁷ Emissions leakage is when there is relocation of production to countries with less stringent climate change policies.

2050 Target

SUMMARY

The Zero Carbon Bill proposes a new long-term emissions reductions target.

There are three key considerations in exploring setting a new target: The Paris Agreement, the science of short-lived and long-lived gases and the potential economic impacts of different targets.

There are three target options we explore that could replace our current target of 50% reduction below 1990 levels by 2050:

- **Net Zero Carbon Dioxide:** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases:** Reduce emissions of long-lived gases to net zero by 2050, while also stabilising emissions of short-lived gases
- **Net Zero Emissions:** Net zero emissions across all greenhouse gases.

This section outlines the possible implications of different targets; whether we should use emission reductions from overseas; the legislative options we have for setting a new target; the potential role of a new Climate Change Commission; and how we could include flexibility to meet our targets over time.

We are seeking your views on:

- What target we should set
- How New Zealand should meet its emissions reduction targets
- Whether the target should be set in primary legislation
- Whether the target should be able to change

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended [Submissions Form](#), and online [at this link](#).

Our current target

We propose introducing a new 2050 climate change target through the Zero Carbon Bill. This would give the target more prominence and discourage changes of ambition in response to short-term considerations.

Setting a new target would:

- provide an enduring, long-term signal to businesses, consumers, and New Zealanders
- provide alignment to the Paris Agreement's global goal of reaching net zero emissions by the second half of the century
- help to inform our successive Nationally Determined Contributions (NDCs)
- signal to the world that New Zealand is playing its part in the global effort.

Setting targets is not new. New Zealand has already made commitments to reduce emissions to:

- 5% below 1990 levels by 2020
- 11% below 1990 levels by 2030 (or 30% below 2005 levels by 2030)

- 50% below 1990 levels by 2050.

Regardless of what decision is taken about a new 2050 target, the Government is still fully committed to implementing our Paris Agreement commitments, and focussed on delivering our existing Nationally Determined Contribution by 2030.⁸

All of the target options we consider are forms of ‘net zero’ targets – they would all put New Zealand on a pathway to net zero emissions in the second half of this century. The difference between each option is the speed by which we would reach net zero emissions. The most ambitious target option we have considered, *Net Zero Emissions*, would see us reach net zero emissions in 2050, whereas other options would put us on track to getting there in later years.

Setting a new target

There are three main considerations when setting a new 2050 target:

1. **The Paris Agreement**, as New Zealand has signed and ratified this global agreement
2. **The science of short-lived and long-lived gases**, given the important differences between the impact of these gases on the climate
3. **Economic impacts**, as meeting the different targets is likely to have important implications for the economy of New Zealand over the coming decades.

The Paris Agreement

The Paris Agreement sets the gauge for international expectations around our efforts to reduce emissions over the long-term. The headline emissions reduction objectives from Paris are:

- *“holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” - Article 2.1 (a)*
- *“In order to achieve the long-term temperature goal set out in Article 2 [...] to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century” – Article 4.1 (ie, achieving ‘net zero’ emissions)*

Any domestic action needs to be consistent with our commitment to the Paris Agreement goals. By honouring our commitments, New Zealand is better placed to encourage other countries to keep to theirs, including countries with much greater emissions than our own.

The science of different gases

Any target we set needs to be informed by the best available climate change science and mātauranga Māori. Nearly half of New Zealand’s greenhouse gas emissions come from agriculture, which means we need to pay particular attention to the scientific impact of short-lived gases like methane, which dominate agriculture’s emissions.

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⁸ Nationally Determined Contributions are the efforts each country put forward under the Paris Agreement.

SHORT-LIVED AND LONG-LIVED GASES

Short-lived gases like methane decay relatively rapidly in the atmosphere. They last for decades rather than centuries. This means global temperatures can be stabilised without necessarily reducing emissions of these gases to zero. We also have an opportunity to even further lower the impact of our domestic emissions by not only stabilising, but also where possible reducing short-lived gases from our economy.

Long-lived gases like carbon dioxide, need to either reduce entirely to zero, or at least to the point where emissions can be balanced out by an equal amount of removals for example by planting new forests.

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~~Short-lived gases like methane decay relatively rapidly in the atmosphere. They last for decades rather than centuries. This means global temperatures can be stabilised without necessarily reducing emissions of these gases to zero. We also have an opportunity to even further lower the impact of our domestic emissions by not only stabilising, but also where possible reducing the flow-rate of short-lived gases from our economy.~~

~~Long-lived gases like carbon dioxide, need to either reduce entirely to zero, or at least to the point where emissions can be balanced out by an equal amount of removals, for example by planting new forests.~~

There are two scenarios where New Zealand's domestic emissions impact on global temperatures could be defined as zero:

- Reducing long-lived greenhouse gas emissions to zero and stabilising our short-lived gases, which would mean our domestic emissions wouldn't contribute to any further increase in global temperatures. ~~However, our domestic emissions would still be contributing towards holding global temperatures at elevated levels because of the continued emissions of short-lived gases.~~
- Reducing all greenhouse gas emissions to net zero would mean our domestic emissions would have no impact on the climate from that point forward.

Hypothetically, if both scenarios were applied worldwide then global temperatures would stabilise in each case, but they would stabilise at a lower temperature under the second scenario.

4. Economic outcomes

To meet these targets we are likely to need real changes to the way New Zealanders work, travel, and consume. This means it is important for us to try and understand the range of potential economic outcomes. Further information is included below.

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Options for a new climate change target for 2050

This section examines three potential outcomes from different 2050 target options which would supersede our current 2050 target. These are:

- **Net zero carbon dioxide by 2050.** This target would reduce net carbon dioxide emissions in New Zealand to zero by 2050 (but not other gases like methane or nitrous oxide).

- **Net zero long-lived gases and stabilised short-lived gases by 2050.** This target would reduce emissions of long-lived gases (including carbon dioxide and nitrous oxide) in New Zealand to net zero by 2050, while stabilising emissions of short-lived gases (including methane).
- **Net zero emissions by 2050.** This target would reduce net emissions across all greenhouse gases to zero by 2050.

WHAT DOES 'NET' MEAN?

The term 'net emissions' is normally used to describe the emissions from a country when the impact of land use *and* forestry is included in the analysis:

- **Gross emissions.** These are greenhouse gases from the parts of the economy that we traditionally think about as emitters – e.g. cars, factories and livestock.
- **Net emissions.** These include gross emissions minus the emissions removed from the atmosphere through the impact of land use and forestry.

There are different ways to account for forests against our targets. Options include accounting for new forests only, as in our current target accounting, or including all of our forests, as reported in our Greenhouse Gas Inventory.

Table 1 below compares the high-level economic and emission outcomes of these four options.

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Table 1: Economic and emission outcomes of the options for the 2050 target

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TARGETS	Status Quo	Net Zero Carbon	Net Zero Long-Lived Gases and Stabilised Short-Lived Gases	Net Zero Emissions
EMISSIONS	50 percent reduction (all gases) on 1990 levels by 2050	Net zero carbon dioxide emissions by 2050	Net zero long-lived gases by 2050, while also stabilising flow rate of short-lived gases	Net zero emissions (all gases) by 2050
LAND SECTOR	<ul style="list-style-type: none"> Moderate land use change Expanded forestry estate 	<ul style="list-style-type: none"> Land-use outcomes more uncertain because targets not prescriptive for methane Expanded forestry estate needed to offset CO₂/N₂O Main driver of land-use change will be the level of ambition for methane reductions 		<ul style="list-style-type: none"> Major land use change needed to reduce or offset methane and CO₂/N₂O Up to 10 percent of New Zealand given over to new forest planting
ENERGY/ TRANSPORT	<ul style="list-style-type: none"> High rates of EV adoption (60-80% in 2050) Some reductions from industrial heat 	<ul style="list-style-type: none"> Major changes in energy and transport sectors EVs likely to make up to 95 percent of the light vehicle fleet in 2050 Industrial heat switches from fossil fuel to electricity and biomass Any CO₂ emissions remaining in 2050 would need to be offset by new forest planting 		
TECHNOLOGY OPTIONS	Target allows trade-offs to be made between sectors, gases and technologies as costs and availability change	Target is focussed on CO ₂ , with many of the technologies that we will need already available	Technologies needed for both long-lived and short-lived gas emissions reductions, with limited ability to make trade-offs between progress on both of them	The high target ambition means that most, if not all, current and future technology options for emissions reductions will need to be adopted

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TARGETS	Net Zero Carbon	Net Zero Long-Lived Gases and Stabilised Short-Lived Gases	Net Zero Emissions
EMISSIONS	Net zero carbon dioxide emissions by 2050	Net zero long-lived gases by 2050, while also stabilising flow rate of short-lived gases	Net zero emissions (all gases) by 2050
LAND SECTOR	<ul style="list-style-type: none">• Land-use outcomes more uncertain because targets not prescriptive for methane• Expanded forestry estate needed to offset CO₂/N₂O• Main driver of land-use change will be the level of ambition for methane reductions		<ul style="list-style-type: none">• Major land use change needed to reduce or offset methane and CO₂/N₂O• Up to 10 percent of New Zealand given over to new forest planting
ENERGY/ TRANSPORT	<ul style="list-style-type: none">• Major changes in energy and transport sectors• EVs likely to make up to 95 percent of the light vehicle fleet in 2050• Industrial heat switches from fossil fuel to electricity and biomass• Any CO₂ emissions remaining in 2050 would need to be offset by new forest planting		
TECHNOLOGY OPTIONS	Target is focussed on CO ₂ , with many of the technologies that we will need already available	Technologies needed for both long-lived and short-lived gas emissions reductions, with limited ability to make trade-offs between progress on both of them	The high target ambition means that most, if not all, current and future technology options for emissions reductions will need to be adopted

Studying the economic impacts The opportunities and challenges of transition

To understand both the upsides and the challenges of the transition, we have carried out analysis to understand what might happen if we meet different targets.

We have looked at a series of models and other studies to assess the impact on the New Zealand economy. This is useful as it gives us a sense of the range of economic impacts of our target options. This includes how they might affect different sectors, regions and households.

Studies have been carried out by a range of sources including independent external experts, offshore research bodies and government economists.

Under any of the 2050 target options, our economy can continue to grow, just not as quickly as it might have done without any further climate action. It's possible to meet a new 2050 target while growing our economy, but it will not come for free and it won't be without challenge. To keep our economy growing we would need to substantially expand our forest estate while continuing to innovate. Some households and some sectors are likely to face higher costs and more disruption than others. The Government is committed to an approach that includes policies to support a fair and inclusive transition.

Modelling results – key themes

Table 2: Summary of the economic opportunities and challenges

OPPORTUNITIES	CHALLENGES
<p>We could see:</p> <ul style="list-style-type: none"> Higher rates of innovation in sectors exposed to a higher emissions price, leading to an up-lift in productivity New business opportunities in lower emissions sectors Less time wasted in traffic congestion and improved health from switches to public and active transport Health benefits from warmer and drier homes If the rest of the world acts as well, reduced impact on our economy from climate change effects 	<p>We could face:</p> <ul style="list-style-type: none"> Slower rates of economic growth as a result of higher emissions prices and other transition policies Competitiveness issues in trade-exposed emissions-intensive industries Decline in output and jobs for higher emissions sectors Slower rates of growth in household income

The opportunities

Our research has explored the opportunities for stronger climate policy to deliver wider positive effects. While opportunities are often more difficult to quantify than economic costs, many previous studies from both New Zealand and overseas have calculated substantial wider benefits of transitioning to a low-emissions economy. This is set out in the table below.

Table XX: Potential benefits of transitioning to a low-emissions economy

EMISSIONS REDUCTION POLICY	NATURE OF THE BENEFIT	ESTIMATED SCALE OF BENEFIT OR SCALE OF THE PROBLEM	STRENGTH OF EVIDENCE
ENERGY EFFICIENCY/ HOME INSULATION	Better health from drier, warmer homes	Every \$1 spent on the Heat Smart home insulation programme generated benefits of \$6 for at risk groups (children and the elderly) and \$4 generally. The emissions reduction benefits are relatively small.	Strong
ACTIVE TRANSPORT	Better health outcomes	Investment of \$630m in infrastructure to support active transport could	Strong

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<u>(WALKING AND CYCLING)</u>	<ul style="list-style-type: none"> from more exercise and improved air quality • <u>Reduced road traffic congestion</u> 	<p>generate net benefits of \$13b by 2050, mostly due to the health benefits from increased exercise</p> <p>570 premature deaths and 1.35m restricted activity days lost every year due to air pollution. Transport is likely to be secondary cause of air pollution (or primary cause in Auckland). Total cost of deaths from air pollution is estimated at \$4.3b per year. Noting active transport means increased risks of cyclist injuries and fatalities from road traffic accidents. Traffic congestion in Auckland costs \$0.9-\$1.3b each year.</p>	
<u>PUBLIC TRANSPORT</u>	<ul style="list-style-type: none"> • <u>Reduced traffic congestion</u> • <u>Better health outcomes from improved air quality</u> 	<p>Benefits of existing passenger rail network in Wellington and Auckland estimated at between \$1.1b and \$1.2b, almost all from reduced congestion</p> <p>570 premature deaths and 1.35m restricted activity days lost every year, see above.</p>	<i>Moderate</i>
<u>FORESTRY</u>	<ul style="list-style-type: none"> • <u>Improved freshwater quality</u> • <u>Reduced soil erosion</u> • <u>Improved biodiversity / species protection</u> 	<p>More forestry can mean carbon storage, and also benefits for water quality, biodiversity, reduced soil erosion, improved land use productivity and regional economic development.</p> <p>Approx. 1 million hectares of private land is subject to moderate to extreme erosion that is potentially well-suited to afforestation.</p> <p>The eco-system value of each hectare of plantation forestry in the Ohira catchment was \$5,600 per annum, over half of which from improved water quality. The scale of benefits depends on where the trees are planted.</p>	<i>Moderate</i>
<u>ROAD FREIGHT TO RAIL</u>	<ul style="list-style-type: none"> • <u>Reduced traffic congestion</u> • <u>Reduced road maintenance costs</u> • <u>Improved road safety</u> 	<p>Estimated benefits on current rail freight are about \$200m per year for reduced congestion, \$80m per year for reduced maintenance costs and \$60m per year for safety.</p>	<i>Moderate</i>
<u>USE OF ELECTRICITY FOR HOME AND INDUSTRIAL HEAT</u>	<ul style="list-style-type: none"> • <u>Better health from improved air quality</u> 	<p>570 premature deaths and 1.35m restricted activity days every year due to air pollution. Heat generation from fossil fuels is likely to be the primary cause of this, depending on location and time of year.</p>	<i>Moderate</i>
<u>ELECTRIC VEHICLES</u>	<ul style="list-style-type: none"> • <u>Better health from improved air quality</u> 	<p>570 premature deaths and 1.35m restricted activity days every year, see above.</p>	<i>Moderate</i>
<u>IMPROVED FARM PRACTICES</u>	<ul style="list-style-type: none"> • <u>Improved freshwater quality</u> 	<p>Reduced nitrogen use (eg fertiliser) and improved pasture management could reduce nitrogen leaching into rivers by 13%.</p> <p>The value of this benefit will depend on the catchment as nitrogen is more of a problem in some areas than others.</p>	<i>Weak</i>

Modelling the economic cost

There will also be costs to reducing emissions. We have used two different quantitative models to estimate the economic impacts of different targets:

- **Vivid's model** looks at energy, land use and transport (without modelling interactions between them) and tells us the impact of meeting targets on emissions prices but not on economic growth.
- **NZIER's model** examines how emissions prices, economic growth and also household income might change to meet different emissions targets.

Each study gives us different insights. The NZIER study examines the impacts on the economy as a whole, so we can see how the economy might change in response to different targets. It helps us consider how technological innovation and different rates of forestry might affect the total cost of the different targets.

Overall the key trends are:

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- **The economy continues to grow but not as quickly.** Using a mid-range of results, achieving Net Zero Emissions by 2050 would cause average GDP to grow less quickly – from 2.1% under our Status Quo target to 1.9% if we make ambitious efforts to become a net zero emissions economy. Despite this, the economic impacts could still be significant.
- **A strong economy will require innovation, and a lot of trees.** Emissions prices could be higher and growth rates lower if we don't plant enough trees or continue to innovate, or the impacts could be milder if we plant more trees or manage faster innovation.
- **Supporting lower income households will need to be part of our approach** – otherwise the impacts on these households could be disproportionate.
- **Some sectors, particularly those with high emissions and those competing in international markets and/or have limited opportunities to reduce their emissions will be harder hit than others.**

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Limitations and assumptions

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Modelling results change depending on how they are designed and assumptions made about the future⁹. This means that while modelling gives us a reasonable view through to 2030, beyond that the picture becomes less certain. Looking back both at changes in technology and shifts in our economy over the last three decades shows that we can expect huge changes if looking forward to 2050. This means modelling out to 2050 is stretching the models used to their limits.

The two economic models – from NZIER and Vivid – don't capture other benefits, such as the positive knock-on effects of policies to reduce emissions. For this reason, it can be argued that emissions prices and growth rate impacts could be overestimated in these models.

Mid-range results

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The results presented here reflect a scenario that assumes innovation across agriculture, energy and transport, and substantial forest planting – driven by climate policies. This represents a fair 'mid-range' set of results, sitting between the difference in results of Vivid's and NZIER's modelling.

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Table 3: Summary modelling results on economic growth and emissions prices under 2050 target options

Economic Impact – Annual averages		Status quo, OR Net Zero Carbon ¹¹	Net Zero Long-Lived Gases & Stabilised Short-Lived Gases	Net Zero Emissions
- Compared to today - Compared to current domestic target (squa) - Compared to 'do nothing' baseline ¹⁰				
ECONOMY: WIDE IMPACT	GDP growth rate ¹² (%)	2.1%	1.9%	1.9%

⁹ See Appendix for more information on modelling assumptions.

¹⁰ The 'do nothing' baseline has been constructed by NZIER based on Treasury's economic projections and emissions information provided by government agencies. This baseline's emissions projections are higher than those published in the most recent government projections, and this difference means the model could be over-stating the emissions reductions needed to meet each target, and so the impacts on the economy could be milder than modelled. The most recent government emissions projections were not finalised in time to feed into this modelling study, but will provide the basis for continued modelling of the transition to low emissions.

¹¹ For the modelling, it is assumed that the Status Quo target and the Net Zero Carbon target have the same economic impact. This is based on the assumption that both targets result in broadly similar emissions reduction by 2050 as measured by GWP 100.

¹² GDP growth rate reflects the annual average GDP growth rate over the period 2018 to 2050.

HOUSEHOLD IMPACT	Absolute change compared to current domestic target	N/A	↓0.1%	↓0.2%
	Absolute change compared to 'do nothing' baseline	↓0.2%	↓0.3%	↓0.3%
	GDP ¹³ (\$ billion)	\$381	\$374	\$373
	Percentage change compared to current domestic target	N/A	↓1.7%	↓2.1%
	Percentage change compared to 'do nothing' baseline	↓2.3%	↓4.0%	↓4.4%
	Per household GNDI ¹⁴ (\$ thousand)	\$228	\$224	\$223
	Percentage change compared to 2018 GNDI	↑21.8%	↑19.7%	↑19.3%
	Percentage change compared to current domestic target	N/A	↓1.7%	↓2.1%
	Percentage change compared to 'do nothing' baseline	↓2.3%	↓4.0%	↓4.3%
STRENGTH OF CLIMATE ACTION	Transition cost ('emissions prices') ¹⁵ (\$/tCO ₂ -e)	\$109	\$243	\$272
	Absolute change compared to current domestic target	N/A	↑5134	↑5163

A wider set of results

Our results become more uncertain the closer to 2050 we get. This means modelling shows much greater ranges of results depending on the assumptions used, and the targets we're looking at. Some examples include:

- modelling for net zero emissions by 2050 suggests that GDP will continue to grow, but will be in the range of 10-21 percent less compared with taking no further action on climate change.
- For the same target, the same impact on households is likely to be in the range of 10-22 percent lower income. By the year 2050 per household national income would still increase by 40 percent instead of 55 percent – roughly 15 percent difference by 2050.
- If we assume energy innovation but no agricultural innovation above the baseline (such as no methane vaccine even by 2050) this reduces GDP growth from 2.2% to 1.5%. There are other modelled outcomes with even less innovation, higher transition costs and GDP growth falling below 1.5% will be publicly released as part of the Zero Carbon Bill's consultation process.

These numbers are at the very top of the ranges we have modelled. However, it can be argued that these figures may overstate the impacts. It is highly unlikely we would take no further action on climate change given our current domestic target and our commitments under the Paris Agreement.

¹³ GDP reflects gross domestic product as an annual average over the period 2018 to 2050. Note GDP in 2018 is approximately \$269 billion.

¹⁴ Per household GNDI reflects the gross national disposable income divided by number of households as an annual average over the period 2018 to 2050. Note per household GNDI in 2018 is \$187 thousand. Note also that GNDI is a measure of the total income of New Zealand residents from domestic production and from net income flows with the world.

¹⁵ Emissions prices are annual averages over the period 2018 to 2050. Note emissions prices do not reflect the price of New Zealand Units in the New Zealand emissions trading scheme that industry might face.

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In contrast, the Vivid study looks at the pathways we could take to reach different targets, and the costs of these (presented in emissions prices). The Vivid model tells us about the impacts of sectors. We think these figures are likely to be an underestimate because Vivid's modelling doesn't tell us about the targets' impacts on economic growth.

What the modelling has considered

No one model can capture all the upsides and all the challenges of transitioning. We have used a series. The analysis relies on a series of models that assess the impact on the New Zealand economy, our industries, households and studies assessing evidence from overseas, carried out by independent external experts and complemented by research carried out by government economists.

Together, the findings of the series of reports can be 'jigsawed' together to indicate the overall impacts we can expect from transitioning to meet a new target.

Table 2- Summary of the economic opportunities and challenges [revisions to come to diagram below]

OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> • We could see: <ul style="list-style-type: none"> • Higher rates of innovation in sectors exposed to a higher emissions price, leading to an up-lift in productivity • New business opportunities in lower emissions sectors • Less time wasted in traffic congestion and improved health from switches to public and active transport • Health benefits from warmer and drier homes • If the rest of the world acts as well, reduced impact on our economy from climate change effects 	<ul style="list-style-type: none"> • We could face: <ul style="list-style-type: none"> • Slower rates of economic growth as a result of higher emissions prices and other transition policies • Competitiveness issues in trade-exposed emissions-intensive industries • Some emissions intensive production shifting overseas • Decline in output and jobs for higher emissions sectors • Slower rates of growth in household income

Modelling results change depending on model design and assumptions about how the future will unfold

We have used different methods, assumptions and scenarios of how the future could play out to give an idea of what trends emerge.

'Bottom-up' and 'top-down' models assess the difference in impact in terms of emissions prices and economic growth of aiming for different targets. Modelling has limitations, and the economy-wide results should be read with care:

- Vivid's model risks under-estimating impacts as wider 'flow-on' impacts on the economy are not captured.
 - NZIER's model risks over-stating the impacts as it is conservative about how business and people will respond to high emissions prices, and assumes a limit to how many new trees are planted even at high emissions prices.

These models don't capture what we call the 'co-benefits', the positive knock-on effects of policies to reduce emissions. These and other upsides of transitioning (Table 2) aren't included in the Vivid or NZIER modelling, another reason why the emissions prices and growth rate impacts reported could be an overestimate.

Whilst the models will forecast changes, they can't perfectly predict exact changes in technology and structural shifts as sectors grow or decline. Looking back both at changes in technology and shifts in our

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economy over the last three decades shows that we can expect huge changes if looking forward to 2050. This means modelling out to 2050 is stretching the models used to their limits.

BOX: A MULTI-METHOD ECONOMIC ANALYSIS APPROACH TO ASSESS DIFFERENCE IMPACTS

A multi-method economic analysis approach is underway as no one approach can give the whole picture. This combines bottom-up cost modelling, whole-of-economy modelling, and research on specific impacts to build an understanding of both the challenges and upsides of new targets for 2050. The studies include:

- Bottom-up detailed sector modelling to build a good understanding of use and energy sector models to date to set pathways and assess prospects for 2020-2050 to get different target options. The different range of pathways developed drove the transition via higher emissions paths by sectoral shifts such as fast technological change with first generation structures (VVD Economics (2018))
- Whole-of-economy (Computable General Equilibrium (CGE)) modelling to determine emissions prices and GDP impact of different targets. The assumptions on emissions reductions options are, where possible, aligned with the VVD modelling (NZIER (2018))
- Cost-benefit analysis of the impact of stage climate action on a wide range of activities with the New Zealand context (see Part 6.5), as well as related intersectoral effects
- The co-benefits of emissions reductions, and the benefit to the New Zealand economy of avoiding damages caused by climate change

This and future state of will be published on the Ministry for the Environment website as it is finalised. This part of building a clear picture and evidence base will be used to support future decisions, and the advice of entities such as the Climate Change Commission is sought.

Westpac NZ also commissioned a report for Emissions Trading (VVD) (2018) to determine the benefit to the economy of meeting goals other than the target.

Modelling can indicate trends but what happens in practice depends on choices we make

The modelling and analysis can help by indicating trends, and the relative differences in impact we can expect from setting different targets.

But our models rely heavily on assumptions about how the future will unfold, like how many trees we plant and changes we expect to see in energy, transport and agriculture. Using different models, and changing assumptions about how the future will unfold, give us a range of modelling results. We also need to keep in mind that the majority of results assume the transition is made within the domestic market only with no use of international units, and the absence of transition policies to support the change.

The accuracy of the models will depend on how technology and industries actually develop over time, whether completely new sectors develop, how consumer preferences change. Some industries will face competitiveness challenges, and we'll see job changes. This is why we will ensure that it is a just transition: in reality, government can put in place policies to support the transition by easing the transition for some industries, or supporting vulnerable communities, meaning the modelling results are not predictions of what will definitely happen.

Other countries will also be making changes to their economies over this time. There will be opportunities to cooperate and learn from each other. No country's economy will look the same in 2050 as it does today.

What the economic modelling tells us

We have assessed both the upside to transition, and modelled the overall impact of the different targets on New Zealand's economy, including on our industries, households, regions and the economy as a whole.

Estimating the size of the upside: innovation, co-benefits and avoided climate damage

Our research has explored the opportunities for stronger climate policy to deliver wider positive effects. While opportunities are often more difficult to quantify than economic costs, many previous studies from both New Zealand and overseas have calculated substantial wider benefits of transitioning to a low-emissions economy.

Innovation benefits as firms respond to emissions prices and new sectors develop

International evidence suggests a close link between strong climate policies and increased rates of innovation. Areas we are already world-leading in for research and development (eg agritech) could benefit from first-mover advantage, new sectors may emerge, and new business opportunities could arise.

Wider co-benefits

There are potentially significant wider benefits of stronger climate policy include reduced congestion, health benefits, cleaner air, cleaner water and improved biodiversity. Table 24 shows the potential co-benefits associated with different actions to reduce emissions. The co-benefit estimates presented in the table should be interpreted with care as they are often context-specific or provide an upper bound. The actual co-benefits will depend on the specific emission-reduction policy being considered. The Intergovernmental Panel on Climate Change has noted that benefits such as improved water quality can be more tangible than the emissions reductions, so more meaningful for local communities.

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Table XX: Potential co-benefits of transitioning to a low emissions economy

EMISSIONS REDUCTION POLICY	NATURE OF THE CO-BENEFIT	ESTIMATED SCALE OF CO-BENEFIT OR SCALE OF THE PROBLEM	STRENGTH OF EVIDENCE
ENERGY EFFICIENCY/HOME INSULATION	<ul style="list-style-type: none"> Better health from drier warmer homes 	Every \$1 spent on the Heat Smart home insulation programme generated benefits of \$5 for at risk groups (children and the elderly) and \$4 generally. The emissions reduction benefits are relatively small.	Strong
ACTIVE TRANSPORT (WALKING AND CYCLING)	<ul style="list-style-type: none"> Better health outcomes from more exercise and improved air quality Reduced road traffic congestion 	<p>Investment of \$630m in infrastructure to support active transport could generate net benefits of \$12b by 2050, mostly due to the health benefits from increased exercise.</p> <p>570 premature deaths and 1.35m restricted activity days lost every year due to air pollution; transport is likely to be secondary cause of air pollution (or primary cause in Auckland). Total cost of deaths from air pollution is estimated at \$1.2b per year. Noting active transport means increased risks of cyclist injuries and fatalities from road traffic accidents.</p> <p>Traffic congestion in Auckland costs 60.0 \$1.2b each year.</p>	Strong
PUBLIC TRANSPORT	<ul style="list-style-type: none"> Reduced traffic congestion Better health outcomes from improved air quality 	<p>Benefits of existing passenger rail network in Wellington and Auckland estimated at between \$1.1b and \$1.2b, almost all from reduced congestion.</p> <p>570 premature deaths and 1.35m restricted activity days lost every year see above.</p>	Moderate
FORESTRY	<ul style="list-style-type: none"> Improved freshwater quality Reduced soil erosion Improved biodiversity / species protection 	<p>More forestry can mean carbon storage, and also benefits for water quality, biodiversity, reduced soil erosion, improved land use productivity and regional economic development.</p> <p>Approx 1 million hectares of private land is subject to moderate to extreme erosion, that is potentially well suited to afforestation.</p> <p>The eco-system value of each hectare of plantation forestry in the Ohiwa catchment was \$5,600 per annum, over half of which from improved water quality. The scale of benefits depends on where the trees are planted.</p>	Moderate
ROAD FREIGHT TO RAIL	<ul style="list-style-type: none"> Reduced traffic congestion Reduced road maintenance costs Improved road safety 	Estimated benefits on current rail freight are about \$200m per year for reduced congestion, \$80m per year for reduced maintenance costs and \$60m per year for safety.	Moderate
USE OF ELECTRICITY FOR HOME AND	<ul style="list-style-type: none"> Better health from 	570 premature deaths and 1.35m restricted activity days every year due to air pollution, heat generation from fossil fuels is likely to be the	Moderate

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INDUSTRIAL HEAT	Improved air quality	primary cause of this, depending on location and time of year	
ELECTRIC VEHICLES	Better health from improved air quality	570 premature deaths and 1.35m restricted activity days every year, sea above	Moderate
IMPROVED FARM PRACTICES	Improved freshwater quality	Reduced nitrogen use (eg fertilizer) and improved pasture management could reduce nitrogen leaching into rivers by 13%. The value of this benefit will depend on the catchment as nitrogen is more of a problem in some areas than others.	Weak

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Some sectors will face harder choices than others

The transition to low emissions will create bigger challenges for some sectors than for others. The sectors which are likely to face harder choices will be those which have high emissions, compete in international markets and/or have limited opportunities to reduce their emissions. Emissions-intensive sectors (for example, sheep and beef farming, dairy processing and petrochemical processing) could be more negatively affected than less emissions-intensive sectors (for example, retail services).

Land owners' decisions about how to respond to future climate change policies will have an important effect on the make-up of primary industries and rural communities. The modelling so far suggests big increases in forestry will be required to meet any of the possible emissions reduction targets. For the strongest target we have assessed, net zero emissions, our modelling suggests that new forest planting could need to cover as much as 10% of New Zealand's land area¹⁶. As the Productivity Commission points out, this scale of land use change would be comparable to the scale of the changes we have experienced in land use over the last 30 years, even if the types of changes are different.

Impacts on households and supporting lower income households

Modelling shows the impact of domestic climate action would be felt more strongly by lower income households, because a higher proportion of their spending is on emissions-intensive products. Our modelling suggests that the households which are in the lowest 20% bracket for income may be more than twice as affected, on a relative basis, than those households with an average income. The Government has a number of tools it could choose to use to compensate affected households for higher costs, such as tax or welfare measures. The uneven distribution of costs across different households is an important part of the reason for taking a planned approach to ensure a just and fair transition.

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¹⁶ Currently over 35% of New Zealand's land area is covered by forests. This amounts to 9.9 million hectares.

Avoiding the damages of climate change on New Zealand will also be beneficial

Climate change is having an impact on New Zealand, and will continue to impact us throughout this century. While the potential costs of climate change impacts on the New Zealand economy are not known, we do know our exposure to the impacts are high in many areas, such as our coastal floodplains and to our major economic sectors. The costs are likely to be significant. For example, the economic impact of the 2012–13 drought, which climate change is assessed to have made a contribution, is estimated to be a minimum of \$1.5 billion. Another example shows the costs of weather events to our land transport network in the last 10 years have increased from \$20 million per annum to over \$90 million per annum.

Some studies exist, including by the OECD, who estimated the economic impact of climate change on New Zealand and Australia (combined) as a 1% reduction in GDP by 2050, maybe up to 2% assuming the world acts too. Our emissions are small in the global context, and limiting the damage of climate change requires not only reducing our emissions, but also ensuring that the rest of the world acts to reduce emissions too.

Economic impact for Māori

From the whole of economy modelling we have done, we know many primary sector industries will face both challenges and opportunities in the transition, and that some regions will therefore be impacted more than others. While we have not specifically modelled the impacts on Māori businesses or households, our response to climate change will affect the Māori economy—particularly in the forestry, agriculture and fisheries industries, and workers in some areas.

Many Māori and iwi-run organisations and businesses already practice kaitiakitanga, and are actively thinking about how to be sustainable. Being ahead of the curve in reducing emissions and building resilience will see new business opportunities for Māori emerge—and to pave the way for others to follow, including broadening Government's thinking for how the transition might be managed.

It is also important to consider the unique characteristics, governance and collective ownership of Māori land, Māori aspirations, cultural values, and rights under the Treaty of Waitangi in facilitating the adoption and implementation of climate change opportunities.

Whole of economy modelling

How the models work

We have used two different models to look at how emissions prices and the economy respond to different targets: Vivid Economics (2019) and NZIER (2018). The models used are complex and so it's useful to understand—in broad terms—how they work.

- Vivid's model looks at energy, land use and transport (without modelling interactions between them), and tells us the impact of meeting targets on emissions prices but not on economic growth. The model considers different pathways to lower emissions: meeting net zero emissions at 2050 or later.

- NZIER's model examines how emissions prices, economic growth and also household income might change to meet different emissions targets. The study allows comparisons across New Zealand doing nothing further, at all towards lowering emissions, meeting our current domestic target (50% by 2050) or achieving a net zero emissions target. Within this model the scenarios change based on rates of innovation across energy, transport and agriculture. The extent of new forestry assumed is a key factor driving the modelling results.

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Because of their different modelling methods, these two studies give us different insights into the impacts of the target options.

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assumptions underlying NZIER's modelling of emissions prices and economic growth impacts

The NZIER model builds on assumptions used by Vivid, and includes scenarios where:

— A 'baseline' assuming current policy settings remain, rate energy efficiency and technological change assumptions based on today's rates. Electric vehicles increase to make up 50% of the light vehicle fleet by 2050 based on pricing considerations alone, other countries act consistent with the Paris Agreement which they also signed, agricultural emissions remain unpriced and no international units are used.

— 'Faster energy innovation' occurs, driven by higher emissions prices and transitional policies that double the baseline energy efficiency trends across all industries and a shift to 90% renewable energy by 2025 with the remaining 10% used being gas-fired generation in dry years only.

— 'Faster transport innovation' occurs, driven by higher emissions prices and transitional policies that increase EV uptake to 95% of light vehicle fleet and 50% of the heavy vehicle fleet by 2050.

— 'Faster agricultural innovation' occurs, this sees a one-off innovation of a methane vaccine introduced in 2020 adopted across all farms which reduces dairy emissions by 20% and sheep and beef emissions by 20%. A reduction in global demand for dairy (-11% fall in 2050 output from 2015 levels) and sheep & beef (-15%) is experienced as consumer preferences shift towards lower emissions intensive foodstuffs such as synthetic meats.

These assumptions define the scenarios of mitigations deemed 'possible', and so, after assuming these things happen, the models then calculate the emissions prices necessary to meet a given target. The 'faster' innovations can be turned on and off to see the impact of changing technology in different sectors, or meeting different targets.

The models don't include everything that might happen in the future; they don't allow for unforeseen technologies to ever take us beyond the 'faster' innovation prices. For example recent developments in breeding lower emissions sheep and other voluntary measures, that we are already seeing on farm and by businesses.

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Headline findings

The different models and changing assumptions about the future give us a range of modelling results. Table 2 is a summary of our modelling results for both economy-wide and household impacts under each of the different 2050 target options based on the NZIER modelling. The results reported represent a mid-range across all the modelling information available. Emissions prices could be higher and growth rates lower if we don't plant enough trees or continue to innovate, or the impacts could be milder if we plant more trees or manage faster innovation.

Despite the models' varying methods and limitations, overall we can summarise the key trends as:

— the economy continues to grow but not as quickly, and the economic impacts could still be significant. Using a mid-range of results from the models, achieving Net Zero Emissions by 2050 would cause average GDP to grow less quickly — from 2.1% under our Status Quo target to 1.9% if we make ambitious efforts to become a net-zero emissions economy.

— some sectors will be harder hit than others

— supporting lower-income households will need to be part of our approach — otherwise the impacts on these households could be disproportionate.

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These trends are described further below.

Table 3: Summary modelling results on economic growth and emissions prices under 2050 target options

Economic Impact – Annual averages		Status quo OR Net-Zero Carbon ⁴⁵	Net-Zero Long-Lived-Gases & Stabilised Short-Lived-Gases	Net-Zero Emissions
– Compared to today – Compared to current domestic target (sqve) – Compared to ‘do-nothing’ baseline ⁴⁴				
ECONOMY-WIDE IMPACT	GDP growth rate ⁴⁶ (%)	2.1%	1.8%	1.8%
	Absolute change compared to current	N/A	-0.3%	-0.3%
	Absolute change compared to ‘do-nothing’ baseline	-0.3%	-0.2%	-0.2%
	GDP ⁴⁷ (\$ billion)	\$381	\$374	\$373
	Percentage change compared to current domestic target	N/A	-1.8%	-1.8%
	Percentage change compared to ‘do-nothing’ baseline	-1.2%	-1.1%	-1.1%
HOUSEHOLD IMPACT	Per household GNDI ⁴⁸ (\$ thousand)	\$325	\$324	\$323
	Percentage change compared to current domestic target	N/A	-0.3%	-0.3%
	Percentage change compared to ‘do-nothing’ baseline	N/A	-0.3%	-0.3%

⁴⁴ The ‘do-nothing’ baseline has been constructed by NIEM based on Treasury’s economic projections and emissions information provided by government agencies. This baseline’s emissions projections are higher than those published in the most recent government projections, and this difference means the model could be over stating the emissions reduction needed to meet each target, and to the impacts on the economy could be smaller than modelled. The most recent government emissions projections were not finalised in time to feed into this modelling study, but will provide the basis for continued modelling of the transition to low emissions.

⁴⁵ For this modelling it is assumed that the Status Quo target and the Net Zero Carbon target have the same economic impact. This is based on the assumption that both targets result in broadly similar emissions reduction by 2050 as measured by GMR 100.

⁴⁶ GDP growth rate reflects the annual average GDP growth rate over the period 2018 to 2050.

⁴⁷ GDP reflects gross domestic product as an annual average over the period 2018 to 2050. Note GDP in 2018 is approximately \$269 billion.

⁴⁸ Per household GNDI reflects the gross national disposable income divided by number of households as an annual average over the period 2018 to 2050. Note per household GNDI in 2018 is \$187 thousand. Note also that GNDI is a measure of the total income of New Zealand residents from domestic production and from net income flows with the world.

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STRENGTH OF CLIMATE ACTION	Percentage change compared to 2018	-1.2%	-1.0%	-1.2%
	Transition cost ('emissions prices') ²³ (\$/tCO ₂ e)	\$100	\$143	\$173
	Domestic target	45%	42.5%	40%

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²³ Emissions prices are annual averages over the period 2018 to 2050. Note emissions prices do not reflect the price of New Zealand Units in the New Zealand emissions trading scheme that industry might face.

The economy continues to grow but not as quickly

Under any of the 2050 target options, our economy can continue to grow, just not as quickly as it might have done without any further climate action. Meeting a new 2050 target while growing our economy is therefore achievable, but it will not come for free and it won't be without challenge. Growth is not assured unless we substantially expand our forest estate while continuing to innovate. Some households and some sectors are likely to face higher costs and more disruption than others.

The Government is mindful of this and committed to an approach that includes policies to support a just transition.

There is a wide range of results driven by assumptions around tree planting and innovation.

Unsurprisingly, the modelling results tell us that the more stringent the emissions target, the higher the carbon price required to incentivise the behavioural changes necessary to meet the target. The ranges reflect varying beliefs on how innovation plays out over the next 30 years.

← To meet net-zero emissions, Vivid gives us the annual average emissions price over 2018-2050 as \$76-100/tCO₂-e and \$157-\$250/tCO₂-e at 2050.

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← NZIER tells us, under the more optimistic innovation scenario, an annual average emission price of \$109/tCO₂-e over 2018-2050 if meeting our current domestic target, or \$163 higher at an annual average of \$272/tCO₂-e if meeting net-zero emissions; this price is \$652/tCO₂-e at 2050.

Because the NZIER model looks at the impacts across the whole of the economy, the results include impacts to GDP and household incomes. The model indicates that on average, the economy continues to grow at an average rate of 1.5%-2.1% per annum, with those figures varying according to the target chosen and the pace of innovation in the energy, transport and agriculture sectors.

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Under a net-zero target:

← Potential GDP might be in the range of 10-31% less by 2050, compared with what it might have been in that year if we had taken no action on climate change. However, it is likely that these figures are an overstatement of the impacts. This is due to the fact that the model is very conservative in how it assesses household and business responses to changes in the economy, and doesn't include a number of the benefits above of taking action on climate change.

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← There is considerable uncertainty in the modelling; results worsen if we don't plant enough trees or innovate fast enough particularly in the energy, transport and agriculture. If we plant more trees, the transition 'work' required from the rest of the economy lessens and so the emissions price required to meet a target can fall. Taking the lower end of the range, the average GDP growth could be as low as 1.5% innovation occurred only in the energy and not the agriculture sector²⁴. This would equate to a GDP level of \$352 billion per year, or approximately \$29 billion per year less than if achieving our current domestic target.

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Assuming we take no action on climate change from now sets a baseline for the models, but is not a realistic proposition. Given New Zealand's current domestic target and our commitments under the Paris Agreement, do nothing is not feasible.

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The results presented in Table 1 provide a mid-range between results between the Vivid and NZIER modelling. NZIER show us that meeting zero net emissions has the highest impact on GDP and households. To meet this target the economy grows by 1.0% (on average, each year) rather than 2.1% if

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²⁴ Examples of the type of innovation that is assumed to occur in the energy sector include increasing electric vehicle uptake in the light vehicle fleet to 95 percent by 2050, and a doubling of the historic growth rate in energy efficiency.

meeting our current domestic target. In dollar terms this slower growth rate is reflected over the transition period as an average annual GDP of \$272 billion per year net zero emissions rather than \$281 billion if meeting the current domestic target.

Vivid don't tell us about targets' impacts on economic growth, however given their modelling results we can infer that the GDP, growth and household incomes would be far milder.

Some sectors will face harder choices than others

The transition to low emissions will create bigger challenges for some sectors than for others. Those sectors which are likely to face harder choices will be those which have high emissions, compete in international markets, and/or have limited opportunities to reduce their emissions. Without government policy to re-direct these efforts, emissions-intensive sectors (for example, sheep and beef farming, dairy processing and petrochemical processing) could be more negatively affected than less emissions-intensive sectors (for example, retail services). Yet any decision to reduce the burden for lowering emissions on one specific sector would mean other sectors would need to step up their efforts instead. This balancing act means it is important for the government to work closely with the affected stakeholders when developing its transitional policy proposals.

Land owners' decisions about how to respond to future climate change policies will have a big effect on the make-up of primary industries and rural communities. The modelling so far suggests big increases in forestry will be required to meet any of the possible emissions reduction targets. For the strongest target we have assessed, Net Zero Emissions, our modelling suggests that new forest planting could need to cover much as 10% of New Zealand's land area²⁴. As the Productivity Commission point out, this scale of land-use change would be comparable to the scale of the changes we have experienced in land use over the last 20 years, even if the types of changes are different.

Some new forestry planting might occur on land which is currently under-used, such as shrub or scrubland. Farmers and land owners may also make a choice to convert away from land uses which produce emissions (such as sheep and beef) to forestry to profit from the higher returns that this might provide them. They might also see opportunities to expand lower emissions and high value added land uses such as horticulture.

With strong climate action, businesses that export to overseas markets may become less competitive if these actions result in them facing substantially higher costs than their international rivals. Ultimately, some of these businesses may close or relocate to less costly countries, which may result in 'emissions leakage' where global emissions are not reduced.

Impacts on households and supporting lower income households

The impacts on individual households also vary according to the pace of innovation. To reach net zero emissions, average household incomes²⁵ would still grow by around 18 per cent by 2050 compared to today. However, household incomes when reaching a net zero emissions target could be 10-22 per cent lower in the year 2050 than they might have been had no further climate action been taken. This equates to a cost on households between \$2840 and \$5720 per year, in today's money.

²⁴ Currently over 25% of New Zealand's land area is covered by forests. This amounts to 9.9 million hectares.

²⁵ Household income is estimated by measuring per household gross national disposable income (GNDI), where GNDI is a measure of the total income of New Zealand residents from domestic production and from net income flows with the world.

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Modelling shows the impact of domestic climate action would be felt more strongly by lower-income households, because a higher proportion of their spending is on emissions-intensive products, such as petrol. Our modelling suggests that the households which are in the lowest 20% bracket for income may be more than twice as affected, on a relative basis, than those households with an average income. The Government has a number of tools it could choose to use to compensate affected households for higher costs, such as tax or welfare measures. The uneven distribution of costs across different households is an important part of the reason for taking a planned approach to ensure a just and fair transition.

For example, while action on climate change is likely to raise petrol prices through higher emissions pricing, the Government has signalled it will invest billions of dollars in alternatives to driving petrol cars. This means that in the future, as a result of this investment, many people may find it cheaper and more convenient to use buses or trains, or cycle or walk to work and to school. They may also switch to driving electric cars that have lower running costs. Economic impacts for Māori

While we have not specifically modelled the impacts on Māori businesses or households, our response to climate change will affect the Māori economy - particularly in the forestry, agriculture and fisheries industries, and workers in some areas. In addition, modelling shows that vulnerable households will be more impacted, and a proportion of these will be Māori. Government is committed to ensuring a fair and inclusive transition, and Māori households will need to be considered to lessen the effects.

Many Māori and iwi-run organisations and businesses already practice kaitiakitanga, and are actively thinking about how to be sustainable. Being ahead of the curve in reducing emissions and building resilience will see new business opportunities for Māori emerge – and to pave the way for others to follow, including broadening Government's thinking for how the transition might be managed.

It is also important to consider the unique characteristics, governance and collective ownership of Māori land, Māori aspirations, cultural values, and rights under the Treaty of Waitangi in facilitating the adoption and implementation of climate change opportunities.

WHAT DOES STRONG CLIMATE ACTION MEAN FOR ME IN TERMS OF COSTS?

A transition to a low-emissions economy will require strong climate action. This creates transition costs for businesses and New Zealanders. These costs can be represented in terms of emissions prices. There is huge uncertainty about how much emissions prices would need to increase to reach a low-emissions economy, but in 2050 these prices could range between \$157 and \$652 per tonne of carbon dioxide equivalent (CO₂e). These emissions prices reported are the full cost of transitional policies and not the price industry will face. For example, if Government invests in public transport the prices industry face could decrease.

Businesses could pass on all or part of the transition costs they face through the prices they charge households. For example, a litre of petrol produces 2.3 kilograms of CO₂. This means the price of a litre of petrol at the pump could increase by about 23 cents for every \$100 per tonne of CO₂e. This increase in petrol prices could result in some households deciding to replace their petrol car with an electric vehicle, which would cost less to run.

What this may mean for target choices

As indicated above, modelling and economic analysis gives us only a general sense of the trends and the impacts of target options. It shows that in all cases planting substantial new areas of trees to sequester carbon, supporting innovation and being deliberate about the journey to support economic prosperity and

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our communities will be important. We should also not lose sight of the fact that doing nothing comes with its own risks, as does delaying embarking on the journey.

An important result from the NZIER modelling is that, if we hold firm on all other assumptions including how industries innovate, then the difference to the economy of meeting more ambitious targets does not appear large. But if you have assumptions about different levels of innovation, then there would be larger differences in growth rates.

The economic analysis should best be considered alongside other important considerations, such as our international standing and aspirations for leadership globally, and the brand our businesses are able to project internationally. We will also want to consider how actions we take to reduce domestic emissions also support other outcomes such as improved housing, health or waterways.

It is important to note that many of the economic effects of the transition to 2050 will be felt slowly over time. The Government wants to plan well, to avoid unexpected shocks.

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Using emission reductions from overseas

First and foremost, the Government is committed to ambitious climate change action at home and transitioning the New Zealand economy to net zero emissions over the coming decades. This is consistent with the Paris Agreement.

Depending on how far and how fast we decide to transition, we may require technology that doesn't become available or is not cost effective to purchase until nearer 2050.

The Paris Agreement recognises that countries may choose to cooperate to meet their climate change commitments. Having the option to purchase emissions reductions from overseas may provide us with some flexibility in meeting targets²⁶. It might allow us to meet ambitious climate change targets at a reduced cost.

This could be a cheaper option in the short term. However, it could mean less investment in upgrading New Zealand's economy to reduce emissions.

The extent to which the use of international emission reductions lowers the economic cost of meeting our 2050 target depends strongly on the price at which reductions with high environmental integrity might be able to be purchased.

Our modelling can help us to understand the reduction in economic cost that could be achieved if international emission reductions were available at lower emissions prices than our domestic price. For example, in a hypothetical scenario where the price of international emission reductions is assumed to be \$150/tCO₂e in 2050 (in 2018 dollars) and no restriction were put on the volume that could be imported, then the economic cost of meeting the Net Zero Emissions target would be roughly halved. It is likely that assumptions about higher international prices and/or providing import volume restrictions would decrease the economic benefits from international trade, raise the domestic emissions price and require more substantial investments in domestic emissions reductions.

The extent to which the use of international emission reductions lowers the economic cost of meeting our 2050 target depends strongly on the price at which reductions with high environmental integrity might be able to be purchased. We have a great deal of uncertainty about what our domestic emissions price will be in 2050 and it is also difficult to predict what emissions prices that other countries will experience in 2050. Our modelling cannot tell us what emissions price might be available internationally in 2050. However, our modelling can help us to understand the reduction in economic cost that could be achieved if high-integrity international emission reductions were available at lower emissions prices than our domestic price. For example, in a hypothetical scenario where the price of high-integrity international emission reductions is assumed to be \$150/tCO₂e in 2050 (in 2018 dollars) and no restriction were put on the volume that could be imported, then the economic cost of meeting the Net Zero Emissions target would be roughly halved. While we have not carried out any further interregional runs, it is likely that assumptions about higher international prices and/or providing import volume restrictions would decrease the economic benefits from international trade, raise the domestic emissions price and require more substantial investments in domestic emissions reductions.

International carbon markets

We seek your views on the extent to which international emission reductions could play in helping New Zealand to meet its climate change targets. We would need to evaluate the relative cost of the emission

²⁶ These could be referred to as "carbon credits" or "international units".

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reductions available overseas and those available in New Zealand. If international carbon markets are used in the future, this type of cooperation would need to satisfy a number of criteria. For example, the government would want to be satisfied that:

1. the credits/units are genuine and have environmental integrity (that is, the emission reductions are real)
2. we will maintain substantive domestic progress towards our transition to our chosen emissions reduction target
3. it makes economic sense
4. we can do it in a way that maintains a steadily rising domestic carbon price, so that incentives stay in place for domestic reduction options, like forestry.

Under the Kyoto Protocol, international carbon markets were problematic. There was an oversupply of cheap units, as well as issues with the environmental integrity of some. There was also no cap on the amount of international units that could be surrendered by participants in the NZ Emissions Trading Scheme (the NZ ETS). Later this year we will be consulting on changes to the NZ ETS which help to safeguard its integrity, if international carbon markets are used in the future. An important part of these changes will be the introduction of a volume limit on the use of international units within the NZ ETS. This limit will allow us to manage the impact of any international use on our domestic market and ensure that incentives to make domestic emission reductions are retained.

The Government is involved in a number of international efforts to ensure the environmental integrity of international carbon markets in the future. This includes negotiations through the UNFCCC, providing leadership to establish the 'Ministerial Declaration on Carbon Markets' and a range of other initiatives.

How we set the target

Legislative options available for setting a 2050 target

We want to know your views on whether the new 2050 target should be defined within the Zero Carbon Bill. We have two possible options:

- Option 1: setting the target in primary legislation (ie in the Zero Carbon Bill itself)
- Option 2: setting the target in legislative instruments (eg, the CCRA enables targets to be set in regulations or gazette notice as per our current 2050 target).

Setting the target in the Zero Carbon Bill would put the target in primary legislation - this would be the strongest option available. This option would require a framework around it to support its delivery.

Setting a target using through a legislative instrument (option 2) would mean any future Minister for Climate Change and successive governments could change the target without parliamentary and public scrutiny. This approach would provide future governments with more flexibility to adapt to changing circumstances.

To give New Zealand's new 2050 target more prominence, we propose it is set in primary legislation. This would play an important role in:

- signalling Parliament's long-term commitment to reducing emissions and providing clarity to New Zealanders about its policy objectives
- indicating the elevated priority level of the 2050 target (in relation to other government considerations)

- discouraging changes of ambition in response to short-term considerations.

A potential role for the Climate Change Commission

We seek your views on the role a new Climate Change Commission could have in setting the 2050 target. The Parliamentary Commissioner for the Environment has suggested that the target could be set in a two-stage process.

First, the Government could set a more general statement of ambition in the Bill, in line with the collective global ambition set out in the Paris Agreement. Then, the Climate Change Commission could advise, within a defined timeframe, on the specific target consistent with the statement of ambition.

The advantage of a less specific target in the Zero Carbon Bill itself, could both allow more time for a decision about the target to be made, as well as potentially providing more flexibility on future emissions budgets.

A 2050 target could change over time

We seek your views on whether the Bill should allow the target to be revised. This could be in response to significant changes to the economy, our understanding of the science, the technology available or to take into account what the rest of the world is doing.

Being able to review the target would allow the Government opportunity to adjust the target to respond to unforeseen and significant events under some pre-determined conditions. The downside of being able to review the target is that it might provide less certainty about what is expected from different sectors. Legislation can provide a mechanism to revisit the target and it could also provide guidance or restrictions on what conditions would need to be met for a change to be made, as well as the extent to which it could be adjusted. This should maintain Government's commitment to the long term goal, while offering a process for transparent and well-signalled review.

The proposed Climate Change Commission could have a role in advising the Government on revisions to the target. See the [Climate Change Commission](#) for more detail.

QUESTIONS

1. Should a 2050 emissions reduction target be set in primary legislation under the Zero Carbon Bill?

Pick one:

- Yes
- No

[Optional comment box]

2. What process should the Government use to set a new emissions reduction target in legislation?

Pick one:

- The Government sets a 2050 target in legislation now
- Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.

[Optional comment box]

3. If the Government sets a 2050 target now, which is the best target for New Zealand?

Pick one:

- **Status quo.** Current gazetted target of a 50% reduction below 1990 levels by 2050
- **Net Zero Carbon Dioxide.** Reducing net carbon dioxide emissions to zero by 2050
- **Net Zero Long-Lived Gases and Stabilised Short-Lived Gases.** Long-lived gases to net zero by 2050, while also stabilising short-lived gases
- **Net Zero Emissions.** Net zero emissions across all greenhouse gases.

[Optional comment box]

4. How should New Zealand meet its emissions reduction targets?

Pick one:

- Domestic emissions reductions only (including from new forest planting)
- Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas (international carbon units) that have strong environmental safeguards.

[Optional comment box]

5. Should the Bill allow the target to be revised if circumstances change?

Pick one:

- Yes
- No

[Optional comment box]

Emissions Budgets

SUMMARY

The Zero Carbon Bill could set up the emissions budgeting system.

Emissions budgets can act as stepping stones to guide progress towards our 2050 target.

- An 'emission budget' is a quantity of emissions that can be emitted over a period of time.
- Emissions budgets could be set 10-15 years in advance, with each budget specifying emissions for a 5 year period.
- Future budgets could be revised to allow for changes in the economy and technology
- When setting budgets a range of considerations would need to be made

We seek your views on:

- Timeframes over which budgets should be set
- Whether these budgets should be able to be reviewed
- Whether you agree with the list of considerations that need to be made when setting budgets

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form, and online at [xx](#).

What are emissions budgets Setting emissions budgets to create a pathway

If we set a target to reduce emissions, we will need to also set out a pathway to get there. Emissions budgets are a necessary tool to set out the shorter-term steps that need to be taken to reach our 2050 target.

Emissions budgets describe a quantity of emissions allowed to be emitted over a defined period (e.g. five or six years). We've used budgets before through Kyoto Protocol and under the Paris Agreement.

Emissions budgets are a necessary tool to set out the shorter-term steps that need to be taken to reach our 2050 target. They provide for: They also set a medium-term path for emission reductions (e.g. 15 years).

- increase predictability for businesses and New Zealanders about what is needed over a shorter-term horizon.

- Emissions budgets would inform a wide range of policy decisions, including the allocation of units within the NZ Emissions Trading Scheme. This will help

increase predictability for businesses and New Zealanders about what is needed over a shorter-term horizon.

Emissions budgets are a similar instrument to what we have used to meet our previous international targets, such as under the Kyoto Protocol. Under the Kyoto Protocol New Zealand had a specific budget of allowable emissions over the 2008-12 period. We will also use an emissions budget under our Nationally Determined Contributions, under the Paris Agreement, for the period 2021-30. Having

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~~emissions budgets in the Zero Carbon Bill would be equivalent to using these same mechanisms domestically.~~

~~Emissions budgets are a necessary part of the Zero Carbon Bill~~

~~The Government thinks that setting emissions budgets is necessary to the overall design of the Zero Carbon Bill. Emissions budgets provide a good balance between signalling the emission reduction path far enough into the future, while also allowing flexibility to deal with changing circumstances.~~

~~Allowing some flexibility in the path we take to reduce emissions is essential to cope with changes such as much higher (or lower) costs for reducing emissions than we anticipate.~~

~~The Government does not consider that other options (such as setting a fixed, straight line reduction pathway in legislation) provide enough flexibility to adjust to changes in our economy, to technology and science.~~

Design choices for emissions budgets

~~Emissions budgets require some detailed design choices. These include how far in advance emissions budgets could be set, the duration of each budget and whether and how they can be revised, and the considerations for setting them.~~

~~Setting emissions budgets into the future~~

~~There are several key design choices to consider for emissions budgets. The first is the duration of each budget, and then how far into the future each budget is set. The third is whether they should be able to be revised. [We are seeking your views on:](#)~~

~~The length Duration of each budget~~

~~We propose that the length of each budget should be every five years because it provides greater predictability for businesses and communities while remaining flexible for the future. It would also have lower administrative costs and align with our Nationally Determined Contributions under the Paris Agreement.~~

~~When deciding, we need to consider that too short a period for each emissions budget provides less predictability for businesses and communities and too long a period requires decisions to be made today on very uncertain information. To determine the right length of an emissions budget, the main trade off to consider is the flexibility of more frequent budget setting processes versus the additional administrative cost of running the process.~~

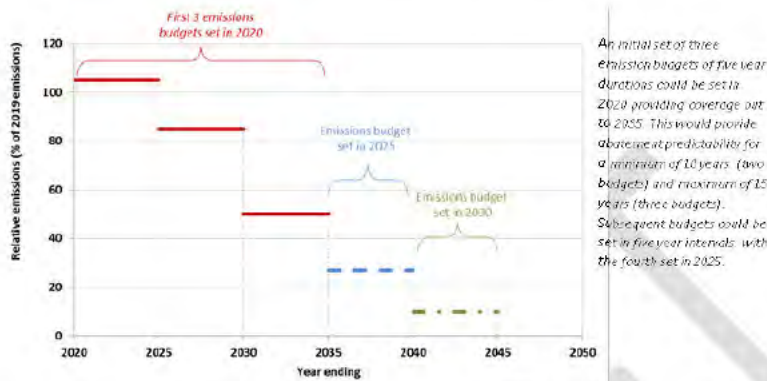
~~There are other ways to do this. The Parliamentary Commissioner for the Environment recently recommended New Zealand set a six yearly budget with a three year review of the policies implemented by the Government. This is designed to line up with our electoral cycle. However, we propose to set the duration of each budget every five years because it would have lower administrative costs and align with our Nationally Determined Contributions under the Paris Agreement.~~

How far into the future budgets are set

We propose that three emissions budgets of five years each be in place at any given time. This would mean we have a minimum 'look-ahead' timeframe of between 10 and 15 years. We think this is a good balance between improving predictability and remaining flexible to changes in the future. These timeframes may

help to depoliticise the budget-setting process as the Government of the day would not be able to set or influence the budget for their own political term.

Figure 2: Possible approach to emissions budgets (three five-year budgets)



Revising emissions budgets

We propose that seek your views on whether the Government should be able to alter the last emissions budget (i.e. the budget that is the furthest into the future). The Parliamentary Commissioner for the Environment suggests that each incoming Government should have the option to review the third budget in the sequence.

The advantage of this approach is that each Government would have a say in setting future emissions budgets. However, it could also make future emissions budgets less predictable for New Zealand businesses.

We would like to hear your views on the proposed design features of emissions budgets, including the proposals from the Parliamentary Commissioner for the Environment.

We also welcome your views on whether the second emissions budget in the sequence should be able to be reviewed under exceptional circumstances (for example following a natural disaster) and adjusted within a specified range.

What issues to consider when setting emissions budgets

We seek your views on what the Government and the Climate Change Commission should take into account when advising on, and setting emissions budgets. This includes important factors such as economic and social circumstances. These considerations aim to help make the process robust and balanced. Detail on the proposed considerations is set out in the Climate Change Commission chapter.

Government response

Budgets alone won't achieve our targets. We'll also need to implement policies to reduce emissions. We propose the Bill requires the Government to publish a plan to meet future emissions budgets. The plan would provide a longer term strategy for the economy and society to support the transition.

Developing a longer term strategy for a low emissions economy has been recommended by the Productivity Commission in their draft final report²⁷. It is also consistent with the Paris Agreement which has an expectation that we formulate a long term low greenhouse gas emission development strategy. Having this in place promotes international cooperation and indicates we are following a rules-based system globally.

There are choices about how we require Government to prepare and publish its plans and policies. We propose that in response to each emissions budget the Government publish:

- a 10-15 year outlook on the choices for our transition pathway
- specific policies within sectors to reduce emissions and achieve the emissions budget (e.g. incentives to support low emission alternatives, like energy efficiency standards)
- other actions we need to take. For example, supporting investment in low emissions sectors and funding for research
- how we address challenges faced by vulnerable communities and sectors to ensure a just transition.

We're proposing that the Government must publish its plan within a set timeframe after each budget has been announced.

Other design features of emissions budgets

Monitoring emissions budgets - We propose that a brief annual report is produced to show how New Zealand is tracking towards the emissions budgets. This could be based on

We need to monitor emissions to determine whether New Zealand is on track (or not) to meet a particular emission budget. New Zealand's Greenhouse Gas Inventory provides Tier 1 data (meets international statistical obligations), and could be used for this purpose. We propose that a brief annual report is produced to show how New Zealand is tracking towards the emissions budgets, alongside the five-year review period discussed above.

Banking or borrowing from one budget to the next -

We propose introducing a small amount of flexibility into each emissions budget. This could be achieved through setting a threshold. A threshold could be set at this point, where a budget would be considered as being met. There is a risk that without this option, the Government of the day might try to meet a budget exactly - even if this comes at a high cost. For example, it could set stringent policies in the last few months of an emission budget period to stay within budget and this could lead to significant costs and disruptions to people's lives, and bring minimal benefits for emissions reductions overall.

Any shortfall in emissions reductions would still be reported on, and could be borrowed from the next emissions budget. Alternatively, if more reductions are achieved earlier, the excess abatement would be carried forward to the next emissions budget.

Aligning budgets with the NZ Emissions Trading Scheme -

The emissions budgets and the NZ Emissions Trading Scheme can easily be designed to be compatible. We are making improvements to the scheme that will give the Government the tools to align the volume of units²⁸ in the Emissions Trading Scheme with our emission budgets.

²⁷ Productivity Commission, *Low emissions economy. Draft report, April 2018*

²⁸ A small amount of other emissions are not accounted for under the NZ ETS and will need to be factored into setting emission budget amounts and NZU limits.

Aligning emissions budgets with international commitments

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Domestic emissions budgets and budgets used to account for Nationally Determined Contributions (NDCs), under the Paris Agreement, have different purposes. Therefore they do not need to be exactly the same²⁹. The Parliamentary Commissioner for the Environment noted this in the March 2018 "A Zero Carbon Act for New Zealand" report, and we strongly agree with this.

Importantly, the domestic emission budgets will be directly influenced by the form of the 2050 target, but how we account for our future NDCs will need to align with the requirements of the Paris Agreement. Domestic emissions budgets are able to incorporate some flexibility (e.g. the ability to be revised up or down). By contrast, the ambition of NDCs cannot be lowered as they have to demonstrate progression over time and reflect our highest ambition possible.

While emissions budgets do not need to be the same as NDCs, in setting and communicating the budget we will need to maintain confidence in New Zealand's intention to deliver on Paris Agreement commitments. For this reason, both our accounting for our NDCs and our domestic emissions budgets will need to be robust, transparent and aligned with international norms and clearly communicated to our international partners.

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Government response

Budgets alone won't achieve our targets. We'll also need to implement policies to reduce emissions. We propose the Bill requires the Government to publish a plan to meet future emissions budgets. The plan would provide a longer term strategy for the economy and society to support the transition.

Developing a longer term strategy for a low emissions economy has been recommended by the Productivity Commission in their draft final report³⁰. It is also consistent with the Paris Agreement which has an expectation that we formulate a long term low greenhouse gas emission development strategy. Having this in place promotes international cooperation and indicates we are following a rules-based system globally.

There are choices about how we require Government to prepare and publish its plans and policies. We propose that in response to each emissions budget the Government publish:

- a 10-15 year outlook on the choices for our transition pathway
- specific policies within sectors to reduce emissions and achieve the emissions budget (e.g. incentives to support low emission alternatives like energy efficiency standards)
- other actions we need to take. For example supporting investment in low emissions sectors and funding for research
- how we address challenges faced by vulnerable communities and sectors to ensure a just transition.

We're proposing that the Government must publish its plan within a set timeframe after each budget has been announced.

²⁹ The Parliamentary Commissioner for the Environment noted this in the March 2018 "A Zero Carbon Act for New Zealand" report, and we strongly agree with this.

³⁰ Productivity Commission. Low-emissions economy. Draft report. April 2018

QUESTIONS

6. The Government proposes that three emissions budgets of five years each (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

Pick one:

- Yes
- No

[Optional comment box]

7. Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation)
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

8. Should the Government have the ability to review and adjust the second emissions budget within a specific range under exceptional circumstances?

Pick one:

- Yes
- No

[Optional comment box]

9. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets.

Pick one:

- Yes
- No

[Optional comment box]

10. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the 'emissions budgets'?

Pick one:

- Yes
- No

[Optional comment box]

11. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

A Climate Change Commission

SUMMARY

The Zero Carbon Bill proposes to establish a new Climate Change Commission (the Commission) to provide independent expert advice and support New Zealanders to hold Governments to account towards progress.

- There is a spectrum of roles that the Commission could take, from advisory through to decision-making.
- We propose the Commission would have an advisory role in providing advice on:
 - the level of emissions budgets
 - areas of the economy to focus on when achieving emissions budgets
 - issues related to climate change as requested.
- We propose the Commission would have a role in monitoring New Zealand's progress towards emissions budgets and reducing the risks of climate change:
- There is a spectrum of roles that the Commission could have with respect to the NZ Emissions Trading Scheme (NZ ETS), from advisory through to decision-making.
- The Commission could advise on the upper limit of international unit use

We seek your views on:

- the proposed set of core functions for the Commission, and the Commission's role in respect of the NZ ETS
- what matters the Commission should consider or take into account when undertaking its work
- what expertise Commissioners need.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended Submissions Form, and online at [xx](#).

Institutions to support transition

Why set up a Climate Change Commission

New Zealanders need confidence that climate change policies will remain in place, and that our pathway to the long-term target will stay broadly consistent. We think that a Climate Change Commission would be the best institution to show that New Zealand is on track and to hold Governments to account.

Climate change is a long term problem yet decisions are needed now on how we address it. There is a strong case for 'insulating' the policy making process from short term political pressures. Establishing a Climate Change Commission would provide ongoing independent, expert advice to Government on how we make the transition.

Some other countries³¹ have already established an independent institution to provide advice to government. Both the former and current Parliamentary Commissioners for the Environment (PCE) and the Productivity Commission have recommended an institution like this should be established in New Zealand.

For the Commission to be successful, and become a trusted and stable part of New Zealand's government institutions, it would need:

- political consensus for its work underpinned by widespread community and business support
- stable and ongoing funding
- a credible expert board of Commissioners, appointed through a robust and transparent process
- a capable secretariat with access to good quality data from across government

CASE STUDY: THE UK MODEL

The UK's Climate Change Committee (the UK Committee) is a highly regarded model internationally, and both the PCE and the NZ Productivity Commission have provided advice to the Government on how the UK approach could be applied in New Zealand.

The UK Committee is made up of a Chair and 5 to 8 other members, with expertise in climate change science, technology, economics, policy, and business. Its primary role is to advise on the level of carbon budgets, as well as related matters such as the extent to which domestic reductions and international credits should be relied on to achieve each budget, which sectors of the economy offer particular opportunities for emissions reductions, and advice on the most cost-effective route to achieving budgets.

The UK Committee also has a Sub-Committee dedicated to the role of adapting to climate change.

What role could the Commission have?

~~We propose the Climate Change Commission has an advisory rather than a decision-making role. This creates a new channel of independent public advice, and strikes a good balance between providing additional accountability while ensuring Governments are able to make decisions based on their own priorities.~~

~~The Commission's role could range across a spectrum from advisory through to decision making. The decisions that we will need to take on climate change policy will have a broad impact on New Zealanders. Determining the right role for the Commission depends on balancing how much power and independence we give to appointed Commissioners, compared to democratically accountable bodies (i.e. the Government).~~

~~Currently, decisions on climate change policy are made by Government through the support of advice from officials across government departments. New laws, and changes to existing laws, are subject to the Parliamentary process, providing important checks and balances, as well as flexibility for elected Governments to make decisions based on their own priorities.~~

Too much power could make a Commission more at risk of being removed by future parliaments. However, if not enough weight and attention is given to the Commission's recommendations, this could reduce its effectiveness. Both the PCE and the Productivity Commission have recommended New Zealand establish a Climate Change Commission based on the example of the United Kingdom Committee on Climate Change. This would be an advisory role, with mechanisms built in to hold Government to account, as described in ~~Table 4~~ ~~Table 4~~ below.

Table 4: Possible options for the role of a Climate Change Commission

	Advantages	Disadvantages
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³¹ This includes the United Kingdom, Australia, Denmark, Ireland, Finland, and Sweden.

<p>Advisory-only</p> <p>Provides expert advice but the Government is not obliged in a strong way to respond to recommendations</p> <p><i>(Similar to the Parliamentary Commissioner for the Environment model)</i></p>	<p>Provides an additional source of expert independent advice on climate change issues</p>	<p>Not likely to give strong additional accountability to Government, as there is no requirement to publicly respond to advice.</p>
<p>Advisory, with mechanisms built in to hold Government to account</p> <p>Government must publicly respond to and provide rationale when it deviates from the Committee's advice.</p> <p><i>(Similar to the UK - Committee on Climate Change – with strong requirement to develop policies within a specified timeframe)</i></p>	<p>Creates a sound source of advice from an independent Committee, and a hurdle for Government to deviate from that advice.</p> <p>Maintains Government's ability to make decisions on policy, and to trade off outcomes across the economy and society.</p>	<p>The commitment to the long term goal under this option is not as strong as the decision-making option.</p>
<p>Decision-making</p> <p>Commission makes decisions or sets policy under its own authority at arms-length from Government</p> <p><i>(Similar to our Commerce Commission)</i></p> <p>Note, no other countries have a Commission with a decision-making role.</p>	<p>Creates a very strong commitment to the long term goal by delegating decisions to an independent authority</p>	<p>Decisions on climate change policy require trade-offs against a range of outcomes. Delegating decisions to an independent authority risks making progress on climate outcomes, while neglecting other social and economic outcomes.</p> <p>Delegating too much power to the Commission could risk susceptibility to changes by future parliaments. This could damage its stability.</p>

~~We propose that the Commission plays an advisory role (option two). This creates a new channel of independent public advice, and strikes a good balance between providing additional accountability, while ensuring Governments are able to make decisions based on their own priorities.~~

Advisory and monitoring functions

We propose the Commission could have the following advisory and monitoring functions:

- **Emissions budgets** - Advise on the most appropriate level and composition of an emissions budget and monitor our progress towards achieving them.
- **Independent expert advice** – Provide independent advice on areas of the economy to focus and achieve emissions budgets and what's important to consider in getting there.

- **2050 Target** – Periodic check-in on the target level in light of changes in technology, as well as accounting for what the rest of the world is doing. The Commission could advise the Government on the most appropriate level for the 2050 target. See the [2050 target](#) chapter for more details.
- **Adaptation** - Monitor New Zealand's progress towards addressing the risks posed by climate change. Publish a report setting out progress towards delivering the National Adaptation Plan
- **International emission reductions** – advise on the extent to which international emission reductions should be used towards our targets

The Commission's role in the NZ Emissions Trading Scheme (NZ ETS)

We seek your views on ~~what role~~ the Commission's ~~role could have with regard to~~ in the operation of the NZ ETS. The NZ ETS is a well-established tool that puts a price on emissions and supports New Zealand to meet its climate change targets.

~~A key finding of~~ The most recent review of the NZ ETS ~~found that the is that~~ current settings ~~have created~~ significant regulatory uncertainty. If the Commission had either an advisory or decision-making role on the NZ ETS, it may help provide greater policy stability and predictability. This ~~may could~~ result in more consistent long term signals to business to invest in low emission technologies and forestry.

The Commission could have an advisory role on the NZ ETS. This view is supported by two recent reports. The Draft Productivity Commission report on a low-emissions future suggested a Climate Change Commission could make recommendations on unit supply in the NZ ETS, based on evidence, for the Government of the day to adopt, modify or reject.

"The Productivity Commission agrees that it is not appropriate for a Climate Commission to have decision-making powers. New Zealand's transition to a low-emissions economy will have profound and widespread impacts, and require the weighing of a range of economic, environmental, social and foreign policy considerations..... no government has so far been willing, or deemed it prudent, to transfer decision-rights on climate change mitigation matters to an independent body."

In addition, the Parliamentary Commissioner for the Environment (PCE) report *A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and Beyond (March 2018)* recommended that unit supply in the NZ ETS should be determined by the Government as part of its policy implementation responsibilities.

"Instead of giving the Commission a decision-making role, the Zero Carbon Act could require the Commission to provide advice prior to any change a Government might seek to make to ETS settings"

Another option is for the Commission to have a decision-making role with respect to the NZ ETS, such as the overall level of units supplied into the NZ ETS. This is likely to result in a highly independent NZ ETS, with a very clear role in reducing emissions. The Commission's decisions may also have the following outcomes:

- determining the overall cost to our economy of meeting our target
- setting the maximum emissions prices for NZ ETS businesses
- the emissions cost exposure for our emissions intensive and trade-exposed industries

These outcomes have implications for the emissions costs for businesses and households, the overall functioning of the New Zealand carbon market and on public finances. This may result in the Commission having decision-making powers that have traditionally been associated with Government. This would need to be balanced with the advantages of the NZ ETS being managed with a high level of independence to support New Zealand meet its climate change targets.

WHAT THE NZ ETS DOES

The New Zealand Emissions Trading Scheme (NZ ETS) puts a price on greenhouse gas emissions by issuing a restricted volume of permits to emit into the market. The NZ ETS requires all sectors of New Zealand's economy to report on their emissions and, with the exception of emissions from agriculture³², to purchase and surrender emissions units to the Government for those emissions.

This creates a financial incentive for businesses to invest in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission Units (NZUs) as their trees grow and absorb carbon dioxide.

The NZ ETS was reviewed in 2015/16. There was a clear call from stakeholders to improve the stability and predictability of the scheme. As a result the Government has made in-principle decisions on a package of four proposals to improve the operation of the NZ ETS in the 2020s. The in-principle decisions are expected to be implemented in 2019 following further policy development and consultation later in 2018.

The in-principle decisions include: introducing auctioning of units, to align the NZ ETS to our climate change targets; limiting participants' use of international units when the NZ ETS reopens to international carbon markets; developing a different price ceiling to eventually replace the current \$25/tonne CO₂e fixed price option; and coordinating decisions on the supply settings in the NZ ETS over a rolling five-year period.

Design choices for a new Commission

What the Commission could consider when undertaking its work

It's important that the Commission undertakes all of its proposed functions in a transparent and predictable way. To do this, we propose that the Commission be required to consider a number of factors set out in legislation. The Government should also have to follow these same factors when setting emissions budgets. The United Kingdom's Climate Change Act 2008 offers a useful precedent for what matters their Climate Change Committee should take into account when undertaking its work. These include:

- scientific knowledge about climate change
- technology relevant to climate change
- economic circumstances, and in particular the likely impact of the decision on the economy and the competitiveness of particular sectors of the economy
- fiscal circumstances, and in particular the likely impact of the decision on taxation, public spending and public borrowing
- social circumstances, and in particular the likely impact of the decision on fuel poverty
- energy policy, and in particular the likely impact of the decision on energy supplies and the carbon and energy intensity of the economy

These considerations will help inform judgements on the level of emissions budgets, and the pace of our economic transition. In New Zealand we will need to take into account our own circumstances. This includes our obligations under the Treaty of Waitangi.

The Commission could also consider the three Government objectives for climate change policy: sustainable economy; global and local leadership and creating a just and inclusive society.

³² Methane and nitrous oxide.

The implications for the Government on the Commission's role and functions

The Zero Carbon Bill will propose new requirements on Government to respond to the reports of the Commission. Where the Commission provides advice, such as on the emissions budgets, Government would be required to take this into account and issue a public report in response. Where the Government's actions differ from the advice of the Commission, these reports should outline why.

Where the Commission has monitoring functions, the Government would also be required to publicly respond to the Commission's monitoring report. Requiring the Government to do this within a timeframe of six to twelve months will provide additional accountability.

This accountability is important so New Zealanders can see how Governments are planning for and addressing climate change issues.

What expertise could the Commission have?

We seek your views on the range of expertise that the Climate Commissioners could have. Based on the UK model we would expect 5-8 commissioners could bring a range of expertise. This is important as the credibility of the Commission depends in large part on its membership

We consider that members of the Commission would have a high level of standing in society, be sector experts, rather than representatives of particular stakeholder groups, and include the following essential expertise:

- climate change policy (including emissions trading)
- resource economics and impacts (including social impacts, labour markets and distribution)
- te Tiriti o Waitangi, te reo me ona tikanga Māori, and Māori interests
- climate and environmental science including mātauranga Māori
- experience with addressing adaptation challenges like planning, insurance and local government
- risk management
- Engineering/infrastructure
- community engagement and communications

Desirable, but non-essential, expertise could include:

- business competitiveness
- knowledge of the public and private innovation and technology development system economics

Including the expertise needed in the Commission in our primary legislation aligns with the UK approach³³ and the recommendation of our Parliamentary Commissioner for the Environment³⁴.

³³ This approach also aligns with the UK's Climate Change Act 2008 set out in: <https://www.legislation.gov.uk/ukpga/2008/27/schedule/1>

³⁴ The Parliamentary Commissioner for the Environment, March 2018, A Zero Carbon Act for New Zealand, Revisiting Stepping Stones to Paris and beyond

QUESTIONS

12. The Government has proposed that the Climate Change Commission *advises on and monitors* New Zealand's progress towards its goals. Do you agree with these proposed functions?

Pick one:

- Yes
- No

[Optional comment box]

13. What role do you think the Climate Change Commission could have in relation to the New Zealand Emissions Trading Scheme (ETS)?

Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Comment box]

14. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with this expertise?

[Comment box]

Adapting to the impacts of climate change

SUMMARY

The Zero Carbon Bill can help New Zealand adapt to the impacts of climate change.

- The impact of historical emissions has already changed our climate.

Even with successful reduction of greenhouse gases, we will need to adapt to the impacts of climate change.

- New Zealand is already incurring costly damage to our assets and infrastructure, and our people and communities are facing resilience challenges.

We propose that the Zero Carbon Bill includes the following adaptation provisions to help decision-makers manage their climate change risks in a systematic way:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

We seek your views on:

- the scope, scale and content of the National Climate Change Risk Assessment and National Adaptation Plan.
- the respective roles of central government and the Climate Change Commission for each of the adaptation provisions.
- how an Adaptation Reporting Power should be used and who it should apply to.

Consultation questions on this proposal can be found at the end of this chapter. The full list of consultation questions can be found in the appended [Submissions Form](#), and online at [xx](#).

Increasing our resilience

Regardless of what level of ambition we set within a new Zero Carbon Bill, our climate will continue to change over the coming decades.

As a result, we will face risks from rising sea levels and extreme weather, but also from slow changes to our ecology – our animals, plants and soils underpin not only the primary sector, but also human health.

The costs from climate change are already high, and growing. For example, in the last 10 years the cost of weather events to our transport network has increased from about \$20 million per year to over \$90 million per year.³⁵ Reports from the Parliamentary Commissioner for the Environment indicate that the cost of replacing every building within half a metre³⁶ of the average high tide mark³⁷ could be \$3 billion and within 1.5 metres, as much as \$19-20 billion³⁸.

³⁵ Adapting to climate change in New Zealand: Stocktake report from the Climate Change Adaptation Technical Working Group: December 2017

³⁶ The mid-range projected sea-level rise over the next 50 years is about 30 cm, and could vary between 20 and 50 cm. Note in the last 100 years seas have risen around 14-22 cm.

³⁷ Defined as the Mean High Water Springs.

³⁸ "The RiskScope analysis in NIWA, 2015b shows that the replacement value of buildings within 50 centimetres of the spring high tide mark is \$3 billion and that of buildings within 150 centimetres of the spring high tide mark is \$20 billion." *Preparing New Zealand for Rising Seas: Certainty and Uncertainty: Office of the Parliamentary Commissioner for the Environment, New Zealand. 2015.*

We are committed under the Paris Agreement to plan for and take action on climate change adaptation. In 2016, a Climate Change Adaptation Technical Working Group (CCATWG) was set up to provide advice on adapting to the impacts of climate change while sustainably growing our economy. Two reports have now been released³⁹, with the most recent identifying a series of actions New Zealand should take to increase resilience and adapt to our changing climate.

This section considers possible tools that could be used to help us adapt to climate change.

Creating the right environment for adaptation

At the moment, the way we respond and adapt to climate change impacts is not well co-ordinated. Many of the risks, impacts and actions to adapt are dealt with across a number of different legislative and regulatory regimes.

There are gaps in our information. We have some knowledge about the impact of sea level rise on our coastlines and communities, but even less about the impact rising temperatures will have on our natural systems – what unwanted plants and animals might arrive and thrive as a result, or the impact of ongoing extreme weather events on production in the primary sector. There's more work to do to understand the possible impacts on our health, biodiversity and culture over time.

The Zero Carbon Bill could include requirements into law that we understand the risks, and have a plan to manage them in the law. Setting up the right tools for decision-makers would help us consider the risks to the whole of society and the economy. We could also introduce ways to encourage or require some organisations to share more information on their exposure to climate change risks.

If we introduce, through primary legislation, a way to assess risks and create a plan to adapt, we can take a broad view, and ensure the right settings are in place to respond. This includes how we respond to different needs in different communities around New Zealand. We propose that the Zero Carbon Bill includes:

- a National Climate Change Risk Assessment
- a National Adaptation Plan
- regular review of progress towards implementing the National Adaptation Plan
- an Adaptation Reporting Power

A National Climate Change Risk Assessment

Climate change exacerbates existing risks and creates new risks.⁴⁰ Many councils and communities are already dealing with some of these.

At the moment, our actions to adapt are ad hoc and we can't measure our effectiveness. To address this we propose introducing a compulsory national climate change risk assessment that is updated regularly.

Having this type of assessment is a priority, according to the Climate Change Adaptation Technical Working Group. If we can get a better understanding of which areas and communities are the most exposed and vulnerable to risks, we can ensure we're taking the most effective actions to address these.

Our first step is determining what the risks are for people, infrastructure, the natural environment and the economy. This information needs to be accessible and standardised to help decision-makers - including iwi/Māori, communities, transport and infrastructure sectors, private sector firms, and central and local government.

³⁹ Available at: <http://www.mfe.govt.nz/publications/climate-change/adapting-climate-change-new-zealand-stocktake-report-climate-change>

⁴⁰ IPCC (2014).

A risk assessment would need to align and inform other risk work by Government. It could provide valuable information to the National Security System and the Ministry for Civil Defence and Emergency Management and other interested agencies. The proposed National Climate Change Risk Assessment would:

- identify risks to New Zealand that arise from, or are worsened by climate change
- provide the necessary evidence to improve how we communicate current and future risks and opportunities
- provide a foundation for investment and decision-making, and guide future work
- inform development of a [National Adaptation Plan](#)
- Inform planning and actions to minimise the cost of future climate-related disaster response and recovery
- contribute to an approach across all sectors to help stimulate action in a systematic way
- provide accessible and standardised information for decision-making

Placing this requirement in primary legislation means future risk assessments continue to take a broad view across the economy and society and there will be continuity over time, creating a more stable policy environment.

A national climate change risk assessment would be publicly available, updated at five yearly intervals and the Climate Change Commission would hold responsibility for this.

While the Commission is being set up central Government could initiate the first risk assessment, with future assessments falling under the responsibility of the Commission. Future assessments could include information obtained through a potential [adaptation reporting power](#).

A National Adaptation Plan

Climate change adaptation is not currently integrated into many central government agency objectives. This means legislation and regulatory frameworks and policies around long-term planning are not well aligned. This makes it difficult for local government, businesses and communities to proactively organise themselves and take action.

To date most action taken to adapt to climate change has been reactive. In the case of local government, responses to climate damage are paid for out of maintenance funds. With clear direction, local government and others would have more certainty. This would mean they could plan funding for ongoing climate change-related impacts.

We propose introducing a way to have a planned response to climate change risks. This would provide a national approach to prioritising adaptation action. Given the long-term nature of adaptation, and the breadth and potential scale of the issue, a National Adaptation Plan would:

- identify priority actions for addressing risk, as identified in the climate change risk assessment, including assisting and prioritising vulnerable people and regions
- be based on strong scientific evidence, provide robust information and raise awareness of climate change risks
- help clarify roles and responsibilities on climate change adaptation across different pieces of legislation, different sectors of society, and determine who needs to act on what and when
- be aligned with the work of Civil Defence and Emergency Management, including the need for community and individual resilience
- be designed to deal with changing risks and encourage proactive planning in a comprehensive way

- aim to integrate climate risk into decision-making
- recognise the importance of coordination, collaboration, cooperation and partnerships between central government and other levels of government, and across sectors and society and including iwi/Māori
- recognise the importance of monitoring and evaluating progress towards enhancing resilience
- be designed to look for and take advantage of opportunities for adaptation.

We propose that the Government rather than the Climate Change Commission holds responsibility for the National Adaptation Plan. To address local challenges, we would develop the plan with local government and other stakeholders. The Plan should be updated at five-yearly intervals, to synchronise with the five-yearly climate change risk assessment process.

We would require ongoing evaluation of how the National Adaptation Plan is being implemented. This will ensure the Plan endures, and that it leads to effective adaptation action. We recommend that the Climate Change Commission reviews how the National Adaptation Plan is being implemented at the mid-point of each five year cycle. The outcomes of each review could be used to update the next iteration of the plan.

Exploring potential for an Adaptation Reporting Power

We want to explore whether the Government should introduce an Adaptation Reporting Power. At the moment we don't have a clear picture of what action is being taken as part of risk management processes by organisations which are 'privatised' or in crown entities/state owned enterprises/council controlled organisations.⁴¹

We think we could get a better picture of our risks and opportunities if we could get more information from organisations that own public infrastructure or deliver public services.

We want to hear your views on whether we should explore this further. The type of questions we could consider are:

- the value of having a targeted and specific reporting obligation from organisations
- who this would apply to – should this cover state owned entities, local and central government and / or private companies that provide public services like energy, and transport services including rail
- what the choices are around such a power being voluntary, or included in legislation and mandatory
- what such reporting should cover. For example, how ready organisations are to respond to risks and opportunities

There are likely to be some benefits from this approach. Organisations would be better informed, and more prepared to mitigate or manage risks that have been identified. The reports would reveal how 'ready' organisations are. And they would help Government design supportive policies and to ensure that the regulatory environment encourages adaptation.

⁴¹ These organisations all have different governance arrangements, some constituted under specific legislation, some will be crown entities, some private companies, some publicly listed companies.

Experience in the United Kingdom has found that mandatory reporting delivers a higher standard of reports, as well as complete coverage from the required organisations, providing a better understanding of the adaptation action being taken.

However, it would also bring administrative and compliance costs to both organisations and government.

QUESTIONS

16. Do you think the Zero Carbon Bill should cover adapting to climate change

Pick one:

- Yes
- No

[Optional comment box]

17. The Government has proposed a number of new functions in this chapter to help us adapt to climate change. Do you agree with the proposed functions?

Pick one:

- Yes
- No

[Optional comment box]

18. Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

Pick one:

- Yes
- No

[Optional comment box]

PART THREE: Next steps

The Zero Carbon Bill proposes to create the necessary enduring institutional architecture to meet New Zealand's long-term emission reduction goals and build resilience to the impacts of climate change. The Zero Carbon Bill won't get us through the transition by itself. We also need to continue with a strong emissions pricing regime through the NZ ETS, develop regulation and policy in areas to complement emissions pricing, and support innovation and investment in low emissions technologies.

Government has a number of existing initiatives alongside the Zero Carbon Bill, including:

- strengthening and improving the New Zealand Emissions Trading Scheme
- developing land transport policy strategy that supports investment in low-emissions transport and urban design
- planting one billion trees, and
- establishing a Green Investment Fund to stimulate new investment in low-carbon industries.

Our towns and cities are also contributing. Regional and territorial authorities are improving their understanding of how to adapt to climate change and putting in place plans for low emissions communities. Government is working with iwi, communities and businesses to accelerate the transition. For example, it has worked with the dairy sector to develop the 'Dairy Action for Climate Change', helping farmers reduce emissions over time. The Low Emissions Roadmap with Fonterra is helping large energy users transition off fossil fuels and onto renewable energy sources.

Your feedback will help shape the Zero Carbon Bill

Your specific feedback on the proposals contained in this document will help inform further policy development, and shape what will become the Zero Carbon Bill. Later this year, the Zero Carbon Bill is expected to be introduced into Parliament. A Select Committee process will follow, with a view to passing the Zero Carbon Act by mid-2019.

This will be followed by amendments to the Climate Change Response Act 2002 to strengthen the NZ ETS (in line with changes made through the Zero Carbon Act) and give effect to our international obligations under the Paris Agreement.

Appendices

Table 5: Mitigation opportunities in key sectors where emissions reductions are possible

ENERGY	<p>The energy sector is experiencing rapid technological innovation and will play a huge role in the transition. For example:</p> <ul style="list-style-type: none"> • Electric Vehicles are already economic over the lifetime of the car in some roles and we can expect EV uptake will substantially reduce emissions, and higher public transport use. • Hydrogen fuel cell vehicles might also play a role, and/or advanced biofuels and similar technologies, particularly for moving freight. • Industrial process heat (e.g. milk and meat processing) holds potential to improve energy efficiency and switch to much lower emission fuels such as woody biomass or electricity. • Wind and geothermal are currently the lowest-cost electricity generation options in New Zealand. We still have extensive high-quality untapped renewable energy resources. • Energy efficiency improvements from the use of residential LED lighting and industrial scale plant modifications can reduce emissions directly or help lower costs of using cleaner energy sources.
AGRICULTURE	<p>A methane vaccine is under development to mitigate on-farm emissions in the dairy, sheep and beef sectors. Research and development <i>may</i> give rise to material on-farm abatement opportunities in the future.</p> <p>Land use change to lower-emitting uses will likely be needed to achieve material emission reductions from agriculture.</p>
FORESTRY	<p>Increasing our forested land area will play a huge role in soaking up more emissions, both commercial plantation forests and permanent native forests.</p> <p>Forestry helps buy us time until other technological developments or options become available, but we'll need continued emissions reductions post 2050 - beyond planting ever more trees - to maintain a low-emissions economy.</p>
INDUSTRIAL PROCESSES	<p>Efficiency gains in industrial processes (i.e. steel, cement, fertiliser etc.) will help as there are currently a limited number of available technology options.</p> <p>Industrial sectors that use other high greenhouse gas warming potential products (such as refrigerants) have viable alternatives and improved management practices that can markedly reduce their impacts.</p>
WASTE	<p>Waste can be a valuable resource, for example, Palmerston North's waste treatment plant anaerobic digestion of organic waste creates 'renewable methane' used to generate electricity.⁴²</p>

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⁴²Available at: <https://www.bioenergy.org.nz/documents/resource/Reports/Going-greener-PNCC.pdf>

ABOUT THE ECONOMIC MODELLING

A multi-method economic analysis approach is underway as no one approach can give the whole picture. This combines bottom-up cost modelling, whole-of-economy modelling, and research on specific impacts to build an understanding of both the challenges and upsides of new targets for 2050. The studies include:

- Bottom-up and linked sector modelling building on rural land use and energy sector models to indicate transition pathways and emissions prices from 2030-2050 to meet different target options. The different range of pathways developed drive the transitions via higher emissions pricing, by sectoral shifts or significant technological change within existing economic structures. Vivid Economics (2018)
- Whole-of-economy (Computable General Equilibrium (CGE)) modelling to determine emissions prices and GDP impact of different targets. The assumptions on emissions reductions options are where possible aligned with the Vivid modelling. NZIER (2018)
- Economic analysis of the impact of stronger climate action on innovation and competitiveness within the New Zealand context (Sense Partners) as well as related international evidence
- The co-benefits of emissions reductions and the benefit to the New Zealand economy of avoiding damages caused by climate change.

This and future material will be published on the Ministry for the Environment website as it is finalised. This is part of building a clearer picture and evidence base over time to support future decisions, and the advice of entities such as the Climate Commission once it is established.

Westpac NZ also commissioned a report from Ernst&Young (and Vivid) (2018) to determine the benefit to the economy of acting sooner rather than later.

The NZIER model builds on assumptions used by Vivid and includes scenarios where:

- A 'baseline' assuming current policy settings remain, sets energy efficiency and technological change assumptions based on today's rates. Electric Vehicles increase to make up 65% of the light vehicle fleet by 2050 based on pricing considerations alone, other countries act consistent with the Paris Agreement which they also signed, agricultural emissions remain unpriced and no international units are used.
- 'Faster energy innovation' occurs driven by higher emissions prices and transitional policies that double the baseline energy efficiency trends across all industries and a shift to 98% renewable energy by 2035 with the remaining 2% used being gas-fired generation in 100 years only.
- 'Faster transport innovation' occurs driven by higher emissions prices and transitional policies that increases EV uptake to 95% of light vehicle fleet and 50% of the heavy vehicle fleet by 2050.
- 'Faster agricultural innovation' occurs this sees a one-off innovation of a methane vaccine introduced in 2030 adopted across all farms which reduces dairy emissions by 30% and sheep and beef emissions by 20%. A reduction in global demand for dairy (-11% fall in 2050 output from 2015 levels) and sheep & beef (-15%) is experienced as consumer preferences shift towards lower emissions-intensive foodstuffs such as synthetic meats.

These assumptions define the scenarios of mitigations deemed 'possible', and so, after assuming these things happen, the models then calculate the emissions prices necessary to meet a given target. The 'faster' innovations can be turned on and off to see the impact of changing technology in different sectors, if meeting different targets.

The models don't include everything that might happen in the future: they don't allow for unforeseen technologies to ever take us beyond the 'faster' innovation rates. For example recent developments in breeding lower emissions sheep and other voluntary measures that we are already seeing on farm and by businesses.

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Submissions form

We seek your feedback on the specific proposals in the Zero Carbon Bill.

2050 Target

~~1. Should a 2050 emissions reduction target be set in primary legislation under the Zero Carbon Bill?~~

~~Pick one:~~

~~Yes~~

~~No~~

~~[Optional comment box]~~

~~2.1. What process should the Government use to set a new emissions reduction target in legislation?~~

~~Pick one:~~

- ~~• The Government sets a 2050 target in legislation now~~
- ~~• Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.~~

~~[Optional comment box]~~

~~2.2. If the Government sets a 2050 target now, which is the best target for New Zealand?~~

~~Pick one:~~

- ~~• Status quo. Current gazetted target of a 50% reduction below 1990 levels by 2050~~
- ~~• Net Zero Carbon Dioxide. Reducing net carbon dioxide emissions to zero by 2050~~
- ~~• Net Zero Long-Lived Gases and Stabilised Short-Lived Gases. Long-lived gases to net zero by 2050, while also stabilising short-lived gases~~
- ~~• Net Zero Emissions. Net zero emissions across all greenhouse gases.~~

~~[Optional comment box]~~

~~4.3. How should New Zealand meet its emissions reduction targets?~~

~~Pick one:~~

- ~~• Domestic emissions reductions only (including from new forest planting)~~
- ~~• Domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas (international carbon units) that have strong environmental safeguards.~~

~~[Optional comment box]~~

~~5.4. Should the Bill allow the target to be revised if circumstances change?~~

~~Pick one:~~

- Yes
- No

[Optional comment box]

Emissions budgets

~~6.5.~~ The Government proposes that three emissions budgets of five years each (i.e. covering the next 15 years) be in place at any given time. Do you agree with this proposal?

Pick one:

- Yes
- No

[Optional comment box]

~~7.6.~~ Should the Government be able to alter the last emissions budget (i.e. furthest into the future)?

Pick one:

- Yes, each incoming Government should have the option to review the third budget in the sequence (reflecting the Parliamentary Commissioner for the Environment's recommendation).
- Yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- No, emissions budgets should not be able to be changed.

[Optional comment box]

~~8.7.~~ Should the Government have the ability to review and adjust the second emissions budget within a specific range under exceptional circumstances?

Pick one:

- Yes
- No

[Optional comment box]

~~9.8.~~ Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets.

Pick one:

- Yes
- No

[Optional comment box]

Government response

~~10.9.~~ Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the 'emissions budgets'?

Pick one:

- Yes
- No

[Optional comment box]

~~41-10.~~ What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

[Comment box]

Climate Change Commission

~~42-11.~~ The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with these functions?

Pick one:

- Yes
- No

[Optional comment box]

~~43-12.~~ What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (ETS)?

Pick one:

- Advising the government on policy settings in the ETS
- Makes decisions itself, in respect of the number of units available in the ETS

[Comment box]

~~44-13.~~ The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree?

[Comment box]

Climate Change Adaptation

~~45-14.~~ Do you think the Zero Carbon Bill should cover adapting to climate change?

Pick one:

- Yes
- No

[Optional comment box]

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~~16-15.~~ The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with these?

Pick one:

- Yes
- No

[Optional comment box]

~~17-16.~~ Should we explore setting up a targeted Adaptation Reporting Power that could see some organisations share information on their exposure to climate change risks?

Pick one:

- Yes
- No

[Optional comment box]

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To Hon James Shaw, Minister for Climate Change			Tracking #: 2018-B-04612
<u>Security Level</u>	In confidence	Number of Attachments #	Titles of attachments 1. Draft Cabinet paper 2. Draft discussion document
Date Submitted:	24 May 2018	Response needed by:	25 May 2018
MfE Priority:	Urgent	Action Sought:	Decision

Lodgement of Zero Carbon Bill Cabinet paper and Consultation Document

Key Messages

1. This briefing provides you with a revised version of the Zero Carbon Bill discussion document (Appendix 1) and covering Cabinet paper (Appendix 2). This version incorporates feedback from the discussion at the Cabinet Environment, Energy and Climate Committee on 22 May, and conversations with your office.
2. Once you have approved the discussion document your office will need to lodge the paper with the Cabinet Office by 10am on Friday 25 May, for consideration at the Cabinet meeting on Monday 28 May. We will provide your office with a final, proof-read version to lodge on Friday morning.
3. The key changes to the discussion document are set out in the table below.
4. The Cabinet paper now includes a recommendation that the discussion document is provided in confidence to the Iwi Leaders Group (ILG) and the Interim Climate Change Committee (the Committee) before the formal start of the consultation. Sharing the document with these organisations would:
 - a. Reflect our strategic relationship with the ILG; and
 - b. Allow the Committee to prepare for questions from the public on how its work fits in with the proposals in the Zero Carbon Bill.
5. We recommend you request that Cabinet delegate approval of any final technical changes to you, in consultation with the relevant portfolio Minister. This could help ensure that any final technical changes are approved quickly.
6. We will give you talking points on Friday to support you at the Cabinet meeting.

Key changes to the discussion document

The section that has changed the most is the economic impacts section. This has been updated to reflect the changes from ENV committee, most notably the inclusion of the co-benefits table. We also consider it is important to reflect the full range of results that will be released in the technical reports in the discussion document. We understand the Minister of Finance has received similar advice from the economists at Treasury.

Section	Change	Page number(s)
Executive summary	Changes as reflected in body of discussion document	5-11
Introduction	Structural changes to separate out background and outline of proposals	12-15
2050 target	Addition of reference to New Zealand's potential global leadership	16-21
Economic impacts	Additional table on co-benefits Adding more context on: <ul style="list-style-type: none"> the ranges of the results reflected in the technical reports impacts of targets on sectors and households and the ranges of the economic results. 	22-26
Emissions budgets	Structural changes – no changes to the proposals	31-35
Climate Change Commission	No major changes	36-42
Adapting to the impacts of climate change	No major changes	43-47
Questions	Removed questions 1 and 2 (NZ's action on climate change)	52-55
	Removed question 13 (should NZ establish a climate change commission)	59

Next steps

- Your office will receive the supporting material for consultation, including a draft Communications Plan, Media Release and Questions and Answers on Friday 25 May
- Cabinet will consider the paper, revised discussion document and supporting material on Monday 28 May. You will need to table the supporting material in the meeting
 - Delegated Ministers, or you in consultation with relevant portfolio Ministers, approve any final changes by Wednesday 30 May
 - Test-run public meeting in the week of 5 June
 - Consultation begins Thursday 7 June.



Recommendations

7. We recommend that you:

- a. **Provide** feedback to officials on these papers to incorporate before they are lodged at 9am on Friday 25 May.

Yes/No

- b. **Note** we will provide your office with a final version of the discussion document on Friday 25 May to lodge with the Cabinet office.

Yes/No

Signature

Janine Smith
 Manager
 Climate Change

Hon James Shaw
 Minister for Climate Change

Date

Ministry for the Environment contacts

Position	Name	Cell phone	1 st contact
Senior Analyst	Lewis Stevens		
Responsible Manager	Janine Smith	021 144 7617	Yes
Director	Roger Lincoln		

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Appendix 1: Draft discussion document

Appendix 2: Draft Cabinet paper

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s 9(2)(g)(i)

Main comments from Minister:

- s 9(2)(g)(i)

Conclusions / where we left things

- s 9(2)(g)(i)
- Tsy left behind their document with Lindy's track changes to the discussion document (version from last week I understand), for the Minister to compare with what we currently have. The Minister intends to look at this in more detail tomorrow afternoon (hence why MfE may want to talk to him beforehand)

Other comments

- s 9(2)(g)(i)
- Minister liked a sentence Lindy had proposed that "the economy might grow by 1.9 to 2.5%" (not sure what figures she used). I haven't got the exact quote but this was a sentence from her proposed track changes from last week
- Daniel from Tsy is keen to understand the timetable between now and end of August – eg when next round of modelling will be done, etc.

Let me know if you have any questions or if anything's unclear. Sorry this is quite a long summary ...

Sarah



Sarah Deblock | Private Secretary, Climate Change

Office of Hon James Shaw

Minister for Climate Change | Minister of Statistics | Associate Minister of Finance

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