

Chapter 18:

Our approach to policy

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Our vision of a ‘thriving, climate-resilient and low-emissions Aotearoa’ guides our approach to developing advice on policy direction. The wellbeing of the planet and the people of Aotearoa, and striving for an equitable and fair transition, remain our focus for reaching a better future.

In developing policy, the government needs to support and consider the wellbeing of Iwi/Māori. This includes balancing what is good for tangata, the whenua and the wai, upholding whakapapa, enhancing whanaungatanga, and ensuring intergenerational sustainability and prosperity. These are values that are supported by many New Zealanders.

This chapter presents our approach to developing our advice on the direction of policy for the emissions reduction plan. It outlines the different elements that will be needed to drive the necessary change. The chapter that follows presents advice on specific policy issues.

18.1 Introduction

A key part of the framework for achieving the 2050 climate targets for Aotearoa is the requirement for the Government to develop an emissions reduction plan. This must outline what the government intends to do to make sure the next emissions budget (2022-2025) is met and can also include policies and strategies to meet the subsequent set of emissions budgets to 2035 (2026-2030, 2031-2035.)

Meeting emissions budgets over the coming decades will require fundamental changes to the economy and society in Aotearoa. This includes changes to individual and corporate behaviour, changes to existing processes and ways of operating, as well as technological innovation.

It is critical that households, businesses and investors have confidence in emissions budgets, which is why government needs to develop a deliberate plan outlining the action it intends to take. This will support credibility and greater predictability.

In some areas, taking early action may have minimal impact on reducing emissions initially but may unlock the potential for significant reductions in the future. It is important to identify these areas. It is also important to look beyond 2050. The Climate Change Response Act 2002 (CCRA) requires net emissions to remain at least net zero for every year after 2050; policies to meet emissions budgets must anticipate the need to ‘lock in net zero’ beyond that date.

18.1.1 The Commission’s approach and considerations

Our overall vision is of a ‘thriving, climate-resilient and low-emissions Aotearoa’. To achieve this, the wellbeing of the planet and the wellbeing of current and future generations in Aotearoa must remain at the centre of decision making as the Government develops the emissions reduction plan and puts in place policies and measures to drive the necessary changes. Having that focus is crucial for an equitable and fair transition, and for ensuring the changes and reductions in emissions are sustained and enduring.

The wellbeing of Iwi/Māori throughout the transition to low emissions is a core part of this. He Ara Waiora presents a te ao Māori approach to wellbeing, sourced in mātauranga Māori, and provides valuable and appropriate framing to understand and assess impacts of climate policy for Iwi/Māori.¹

¹ He Ara Waiora was initiated by the Tax Working Group, co-designed with Māori thought leaders and Iwi representatives and is currently under the stewardship of the Treasury. For more information see *Chapter 10*:

It also provides a framework for ensuring that climate policies and approaches consider broader wellbeing of people and the environment, for current and future generations.

In developing and implementing our advice, we have considered impacts on the four dimensions of wellbeing identified in the He Ara Waiora framework (Mana Tuku Iho, Mana Tauutuutu, Mana Āheinga and Mana Whanake). We also looked at how the actions align with the values of kotahitanga, manaakitanga, tikanga and whanaungatanga.²

In developing the emissions reduction plan, the Government needs to make sure any policies and approaches it undertakes to reduce emissions support these dimensions and values.

Box 18.1 The role of the Climate Change Commission (the Commission)

The Minister of Climate Change is responsible for preparing the emissions reduction plan, making the Minister ultimately accountable for the content of the plan and its delivery.

In contrast, the Commission's role is to provide the Minister with advice on the 'direction of policy' required in the emissions reduction plan.

This indicates that our advice should be high-level rather than prescriptive. In general, this is how the Commission has approached the development of draft advice on policy direction. It does not, however, prevent more detailed comments being made about specific policies or policy design, if the Commission judges that it would be appropriate to do so.

Under the legislation, in developing advice on policy direction the Commission must be guided by the same set of considerations as those that apply to advice on emissions budgets.³ This has been articulated through our framework (see *Chapter 3: The role of the Climate Change Commission* in our advice, *Ināia Tonu Nei*).

We are also required to regularly monitor and report on the government's progress towards meeting emissions budgets.⁴ The Government's emissions reduction plan will provide accountability for delivery. The adequacy of the plan, the government's progress in implementing it, and the emissions reductions achieved will be monitored by the Commission over time.

Our first annual monitoring report under the CCRA must be published in 2024, following the release of emissions data for 2022, the first year of the first emissions budget. The Commission may choose to comment on aspects of progress prior to this, focused on policy action and measures taken by the government.

Perspectives from Tangata Whenua: Considering impacts of emissions reductions and removals from a Te Ao Māori view.

² (McMeeking et al., 2019)

³ (Climate Change Response Act 2002 (as at 01 December 2020), 2020, secs. 5ZH and 5ZC(2))

⁴ (Climate Change Response Act 2002 (as at 01 December 2020), 2020, sec. 5ZJ(1))

18.2 Elements of a comprehensive climate policy package

To drive the necessary changes and move towards meeting the 2050 target, the government will need to put in place a comprehensive policy package. It will need to use a range of policy tools, including emissions pricing and other market incentives, regulation and education.

There will need to be significant investments in the future, not only in technology and infrastructure, but also in people and communities. Skills will be needed to ready the workforce, and transition planning will be critical to support people through change. The government also needs to consider how best to engage both the minds and hearts in individuals, business, institutions and wider society to support the necessary change over the long term.

Our approach to developing advice on policy direction is summarised in Figure 18.1 below. It highlights elements an effective climate policy package ought to contain. The focus is on supporting the development of a comprehensive and mutually reinforcing package of government policies that can achieve and sustain emissions reductions, in line with the 2050 targets.

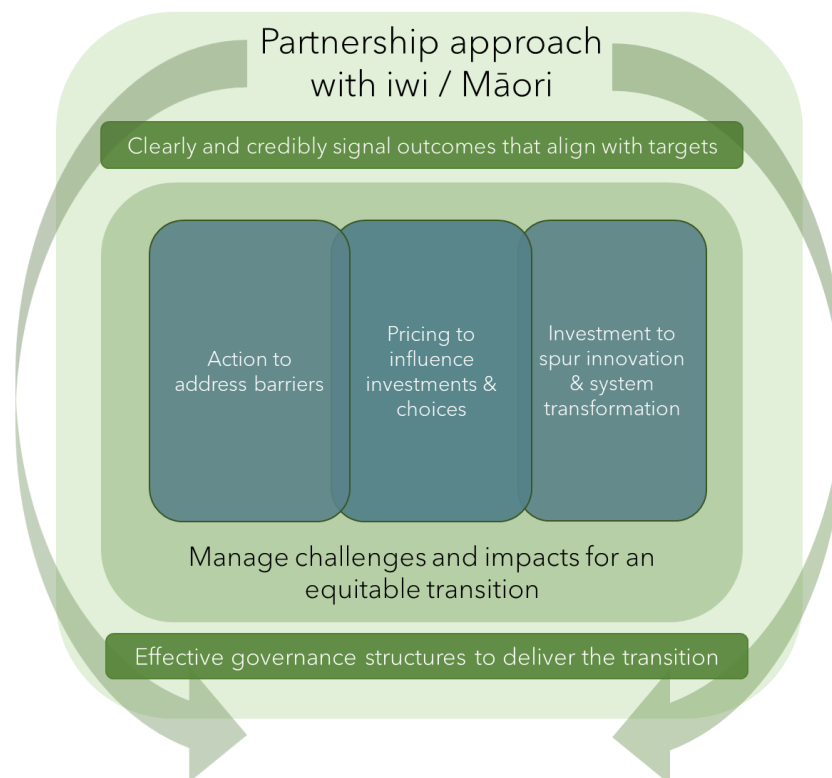


Figure 18.1: Elements of a comprehensive climate policy package

Partnership Approach with Iwi/Māori. The government must partner with Iwi/Māori to develop approaches to meeting the emissions budgets, that balance different objectives and considerations, while aligning with the He Ara Wairoa framework. This includes, for example, balancing what is good for tangata, the whenua and wai, upholding whakapapa, enhancing whanaungatanga, and ensuring intergenerational sustainability and prosperity. This is important, both for the wellbeing of Māori and all New Zealanders, and also to make sure approaches to meeting climate change goals have

longevity, balance different objectives, and do not lock in historic or contemporary disadvantage for Iwi/Māori.

Clearly and credibly signal goals that align with targets. The government must clearly and credibly signal the direction and scale of action required to meet emissions budgets and reduction targets. It must signal policy changes well in advance, while articulating a clear and credible vision for the future of different sectors, industries and communities. Strong, consistent and clear signals would help provide certainty around the speed and direction of travel, as the transition to low emissions progresses. The case for action will be strengthened by making sure there is a clear link between the signals and the legislated targets, along with a transparent evidence base.

Manage challenges and impacts for an equitable transition. As the transition unfolds, challenges and impacts need to be acknowledged and managed to ensure that people remain the clear focus. This is crucial for ensuring Mana Tauutuutu and Mana Āheinga.⁵ This means routes to achieving emissions budgets and targets ought to be deliberately paced and planned to give households and firms certainty about the direction of change, and time to find the opportunities for transition.⁶

Effective governance structures to deliver the transition. Finally, the policy approach will need to be supported by effective governance structures and institutional arrangements. Climate change is a complex and dynamic issue that will require fundamental changes right across the economy and society. Developing effective policy approaches, implementing and monitoring those approaches, and supporting an equitable transition will require coordination across a wide range of government agencies,⁷ levels of government and partnership with Iwi/Māori.

18.2.1 Emissions pricing and other policies work together

In Aotearoa to date, the New Zealand Emissions Trading Scheme (NZ ETS) has been our primary policy response to climate change. This has sometimes been to the detriment of efforts to implement a wider suite of climate policies. This reflects a view, prevalent in the early years of climate policy implementation, that emissions pricing is the main solution and other policy interventions are costly, wasted efforts that do not contribute to additional emissions reductions.

As international research and experience now shows, the most effective and efficient approach is to implement a much more comprehensive and diverse suite of climate policies.⁸

A comprehensive policy approach includes three different types of interventions to enable change:

1. **Action to address barriers.** There are a range of structural, political and behavioural barriers that prevent people and businesses making the most of opportunities to reduce emissions. Measures could include measures like regulation to address split incentives,⁹

⁵ For more information see *Chapter 10: Perspectives from Tangata Whenua: Considering impacts of emissions reductions and removals from a Te Ao Māori view* and the He Ara Waiora framework.

⁶ (New Zealand Productivity Commission, 2018)

⁷ Including, for example, MfE, Treasury, MBIE, MPI, MOT, HUD, EECA, MSD, Ministry of Education.

⁸ See, for example (Canada's Ecofiscal Commission, 2017; Grubb et al., 2014; International Energy Agency, 2017; OECD, 2013b)

⁹ Split incentives can be a barrier to action to reduce greenhouse gas emissions, because they refer to a scenario where the actors who pay for an action are not those who will benefit from that action. For example, landlords may pay for and make the decision to install insulation, but it will be tenants who benefit from the added warmth and reduction in power bills that insulation provides.

mandatory and voluntary standards to drive performance improvements, information and support to address knowledge and capacity gaps over time, or policies that help to nurture and sustain public engagement in climate efforts.

2. **Pricing to influence investments and choices.** The costs of emissions must be internalised, where possible. Emissions pricing incentivises businesses and individuals to make choices that lower emissions. The main pricing tool in Aotearoa is the NZ ETS, but there are other pricing tools that can also be used to incentivise investments and choices – such as taxation, electricity pricing and grants or subsidies. Incentives created by government policy that run counter to the goal of reducing emissions should be removed.
3. **Investment to spur innovation and system transformation.** Targeted interventions would help speed up the transition and increase the emissions reductions that are achievable over the longer term.¹⁰ These interventions could include providing funding for research, development and deployment (RD&D) with spillover benefits, undertaking demonstration projects, and planning for and investing in infrastructure that can unlock deeper emissions reductions over time – for example electric vehicle (EV) charging infrastructure.

An effective policy package would include measures focused in each of the three areas. Each area works on a different time horizon and is focused on different levels of decision making, from individual to collective. Measures from all three areas of intervention must be integrated and used together in a mutually reinforcing way to meet emissions budgets.

The nature of an effective policy package, and the balance between the three areas of intervention, is likely to vary over time and between sectors. The International Energy Agency highlights this point, noting *“the importance of both short-term policy actions that deliver immediate results and those that support long-term mitigation ambitions, such as RDD&D investment in emerging technologies. The role of carbon pricing across sub-sectors differs based on their sensitivity to price”*.¹¹

Emissions pricing is one of the strongest and most flexible levers available for tackling climate change. It works by making the businesses and people who make the decisions that create emissions feel the costs associated with those emissions.

The power of emissions pricing comes from how it allows those driving emissions (both emitters and consumers) to find their own ways of reducing emissions. Given they know their business, needs and capabilities best, this frequently leads to cost-effective outcomes as the price helps direct the allocation of resources towards lower-emissions activities. Emissions pricing can also have broad coverage, because the price incrementally affects a much wider range of decisions across the economy, on both the demand and supply side, than would be possible with more targeted policy interventions. There is extensive empirical evidence showing how effective emissions trading and

¹⁰ (International Energy Agency, 2017)

¹¹ RDD&D stands for research, development, demonstration and deployment. (International Energy Agency, 2017, p. 34)

other market-based measures are at helping to allocate financial resources efficiently and achieve reductions at low cost.¹²

However, there are limits to the effectiveness of emissions pricing, which can be overcome with other policy interventions. For example, high, visible emissions prices can be unpalatable and lead to issues of acceptability. There are also many other challenges associated with reducing emissions that are not strongly related to cost.

For example, not every decision made by individuals and firms is based on an economically rational optimisation of costs. In these cases, standards and information can be more effective than emissions pricing in steering choices towards lower-emissions measures. Other market problems can also hinder the uptake of cost-effective emissions reduction opportunities – for example, split incentives, network externalities and policy coordination problems.¹³ Removing these barriers would aid the supply and demand response to an emissions price – boosting the price signal.

The long time-horizon and enduring nature of the transition, along with the scale of innovation needed, also demands different approaches. Where viable low-emissions solutions do not yet exist, emissions pricing provides some encouragement for their development. But it does not provide the ‘full incentive’ that would be justified when positive spillovers and other social benefits of low-emissions innovation are taken into account. In some cases, the emissions price required to drive the innovation needed at the margin may be so high that is not politically feasible to implement.

A long-term view of cost-effectiveness must be taken, to not only consider just what emissions reductions are cheapest in the near-term but also how actions now can influence future costs. For example, investments in demand-side incentives for key low-emissions technologies – such as financial support for EVs – can lead to improvements that reduce costs for future users of those technologies. These dynamic effects go beyond the life of a particular intervention and mean that some apparently very expensive actions contribute to a more economically efficient, socially equitable transition over time.¹⁴

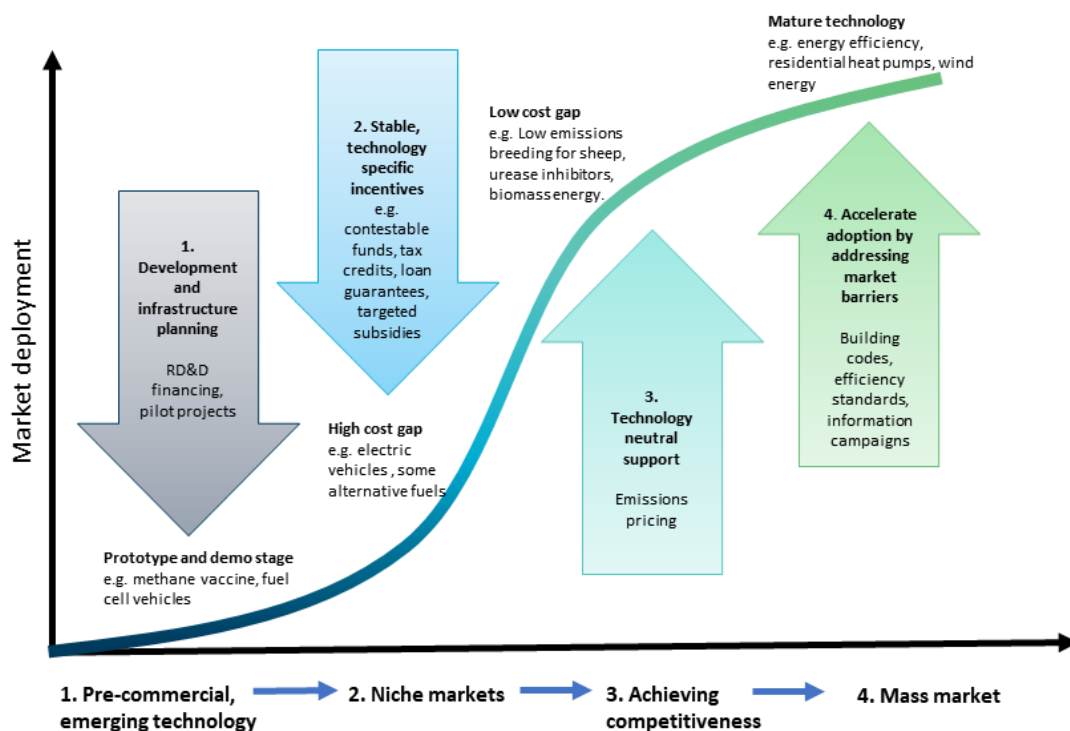
As technologies develop, they progress through phases of the technology life cycle. The International Energy Agency (IEA) uses the technology ‘S-curve’ to guide when to apply which policies, as outlined in Figure 18.2 below.¹⁵ This highlights the important place of technology specific support for research, development and speeding up deployment of innovations.

¹² For example, (OECD, 2013a)

¹³ (Verde & Kardish, 2020)

¹⁴ (Gillingham & Stock, 2018)

¹⁵ Figure adapted from (IEA, 2010)



Source: Adapted from IEA (2009), *Energy Technology Perspectives 2010: Scenarios and Strategies to 2050*, OECD Publishing, Paris.

Figure 18.2: Policy support appropriate to different stages in technology development to minimise emissions reduction costs in the short and long term

Measures are also required to overcome political economy barriers. Emissions pricing can be perceived as unfairly penalising certain individuals, communities or businesses. This limited public acceptance can make it difficult for governments to implement emissions pricing in the most effective way, such as in terms of sector coverage or price level. It may be a pragmatic necessity to use other policies to help compensate for these limitations.

For these reasons, emissions pricing works better when accompanied by other policies that address the full range of market or policy failures. For Aotearoa, this means that as well as continuing with efforts to improve the NZ ETS, the government should develop a comprehensive and mutually reinforcing policy package that spans all three areas of intervention outlined in our policy approach.

Box 18.2 What is the waterbed effect, and does it neutralise non-ETS policies?

The ‘waterbed effect’ is an objection frequently raised against using policies, such as regulation or targeted investment, alongside an Emissions Trading Scheme (ETS).

It refers to the idea that emissions reductions achieved through other policies displace more cost-effective reductions that would have otherwise occurred due to the ETS. This is akin to the way pushing down on a waterbed causes a bulge on the other side.

The assumption is that in a system with an emissions cap (a limit on total emissions imposed by the ETS), each tonne of emissions not emitted by one party will be available for someone else to emit. It

follows that reductions induced by non-ETS policies will simply increase costs for some and make it cheaper for others to keep emitting, rather than contributing to more reductions overall.

However, companion policies to an ETS can, if properly targeted, bring down rather than increase the overall cost of emissions reductions. There are various non-economic market failures or barriers that can prevent the ETS emissions price from being effective. These are discussed in this chapter as well as in *Chapter 11: Approach to developing advice on policy direction* in our advice, *Ināia Tonu Nei*. Companion policies that overcome these barriers can reduce costs by improving people's ability to respond to the emissions price and speed up the development and deployment of new ways to reduce emissions.

It is also necessary to recognise that no ETS in the world today has a fully fixed cap, and the way an ETS cap is managed can play a role in preventing the waterbed effect.

The NZ ETS cap has been designed to be flexible, with unit volumes set on a five-year rolling basis. There are several reasons for this. One is that setting the cap relies on emissions projections, which are uncertain. Another is that significant emissions sources are outside the NZ ETS. For example, some post-1989 forests as well as agricultural biogenic methane and nitrous oxide. It may be necessary to amend the cap in response to lower or higher emissions than expected from these uncovered sources, to keep overall emissions on track towards emissions reduction goals.

In setting the cap, policymakers are balancing objectives related not just to the volume of emissions and the efficiency of reductions, but also the costs that the NZ ETS imposes. This is also why the NZ ETS has price measures that can either withhold or release units to put a brake on emissions price going above or below certain levels.

Together, these mean that it is necessary to adjust the cap over time, as new information about emissions and impacts become available. This provides levers that can also be used to prevent the waterbed effect from 'neutralising' the effects of non-ETS policies.

The flexible NZ ETS cap design means that there are two avenues to adjust for the impact of other policies or investments on emissions:

1. Anticipated emissions reductions can be factored in upfront. This can be seen in the way the first five-year NZ ETS cap was set in 2020, covering the 2021-2025 period.¹⁶ The cap volumes are informed by the government's emissions projections. Where possible, the projections include the expected, modelled effects of other policies on emissions, and this flows through to the setting of a lower cap for the NZ ETS. This includes where emissions reductions are a co-benefit rather than the main aim, such as in the case of freshwater policy. This approach is now also common practice in the way emissions caps are set in other systems, such as the European Union ETS.

2. The cap can be adjusted over time to reflect observed emissions reductions due to other policies. The rolling five-year process for the NZ ETS cap means that each year, a further year of unit volumes is added and the volumes for some other years can be updated. For example, in 2021 the Government must extend the cap to cover the 2026 year. It can also update the unit volumes for the 2024 and 2025 years. The volumes for 2022 and 2023 can be updated if certain circumstances arise.

¹⁶ (Ministry for the Environment, 2020)

This allows for adaptive management of the cap, amending it as more concrete data becomes available about the emissions impacts of other interventions, to avoid reductions being cancelled out.

These approaches are illustrated in figure 18.3 below.

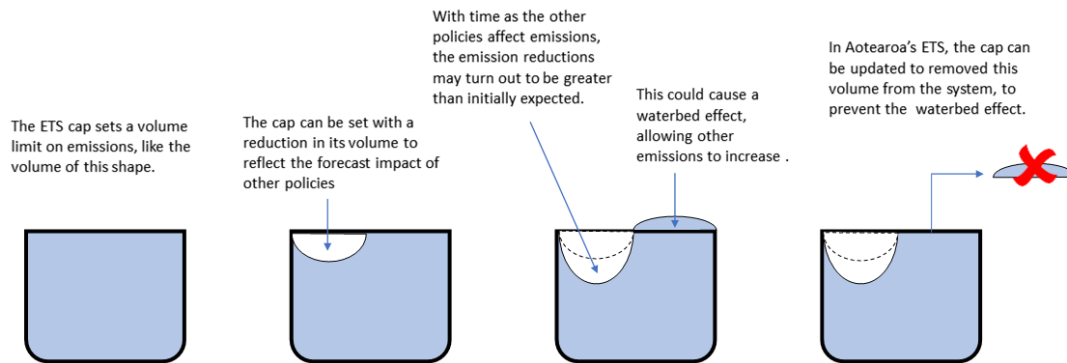


Figure 18.3: The ETS cap can be adjusted over time

It remains important, nevertheless, to carefully consider the rationale for policies outside the NZ ETS and to design them carefully. It also highlights the importance of ongoing efforts to improve forecasts of emissions, to assess the emissions impacts of policies and to refine the method for setting and updating the NZ ETS cap. Together, this supports policy coherence, so that the NZ ETS and other policies can work together in a mutually supportive way.

18.3 Building on existing advice

In the last five years, detailed advice has been developed by a wide range of government agencies and private companies on actions to reduce emissions, including policy approaches.

Government has collated independent expert advice from the Productivity Commission, Parliamentary Commissioner for the Environment, the Interim Climate Change Committee (ICCC), the Prime Minister's Chief Science Adviser, and the Royal Society Te Apārangi.

Relevant to our work is the Productivity Commission's 2018 report on transitioning to a low-emissions economy.¹⁷ The Productivity Commission made 76 recommendations across the economy, requiring implementation by multiple government agencies.

The Productivity Commission identified some immediate priorities for government. These included reforming the NZ ETS, devoting significantly more resource to low-emissions innovation, prioritising policies to avoid high emissions lock-in (including introducing a feebate scheme to incentivise EVs) and amending electricity pricing regulation to facilitate expansion of low-emissions electricity. Some recommendations have already been implemented, including legislating targets and establishing the Commission.

¹⁷ (New Zealand Productivity Commission, 2018)

The Government has accepted all but one of the recommendations¹⁸ and last year began a work program (the Climate Action Plan) to implement the recommendations.¹⁹ The Government has indicated that their response to the Productivity Commission’s report will lead into the development of a low-emissions development strategy, and that the findings and recommendations of the Productivity Commission will inform the development of the Government’s emissions reduction plan.²⁰

The Parliamentary Commissioner for the Environment released a report in 2019 presenting a climate policy approach that deals with biological emissions from agriculture and carbon sequestration by forests together.²¹ The Commissioner supported a separate target for carbon dioxide emissions from fossil fuels and proposed a landscape approach to managing climate and environmental issues in Aotearoa.

Other advice was provided by the ICCC, which made 13 recommendations in relation to electrification and agriculture in 2019.²² The Government has consulted on measures for encouraging energy efficiency, the uptake of renewable fuels in industry and accelerating renewable electricity generation and infrastructure. In response to the report on agriculture, it has also initiated a process to measure and reduce emissions at a farm level – setting up a public-private partnership He Waka Eke Noa as the delivery vehicle. Milestones around farm emissions reporting and farm plans have been set in legislation.²³

Some recent private sector initiatives also offer advice and recommendations. Earlier this year, the Aotearoa Circle hosted the Fenwick Forum, which brought together over 200 senior leaders from across the public and private sector to explore how the COVID-19 recovery in Aotearoa could support a transition to a more sustainable and lower-emissions future. The resulting report highlights three areas of focus for government action: a productive, sustainable and inclusive food system; an efficient, sustainable and inclusive transport system; and a productive, sustainable and inclusive energy system.²⁴ For each of these, the report presents ‘required outcomes’, and recommends interventions and investments.

The Sustainable Business Council and the Climate Leaders Coalition also recently released a *Briefing to incoming Ministers*, focused on initiatives the incoming government can do to accelerate the transition to net zero by 2050.²⁵ Three key recommendations from the report were to prioritise investing in low-carbon transport, reducing emissions from process heat and accelerating the development and adoption of methane reduction technologies.

¹⁸ The one recommendation the Government disagreed with was the recommendation to investigate incentivising wastewater treatment plants.

¹⁹ (Ministry for the Environment, 2019b)

²⁰ (Ministry for the Environment, 2019a)

²¹ (Parliamentary Commissioner for the Environment, 2019)

²² (Interim Climate Change Committee, 2019b, 2019a)

²³ These include: “A system for farm level accounting and reporting of 2024 agricultural greenhouse gas emissions at farm level is in use by all farms by 1 January 2025” and “All farms have a written plan in place to measure and manage their greenhouse gas emissions by 1 January 2025” (He Waka Eke Noa, 2020)

²⁴ (The Aotearoa Circle, 2020)

²⁵ (Smit & Stevenson, 2020)

Modelling by the Business New Zealand Energy Council has also explored elements that might influence the country's future energy mix under different situations.²⁶ The modelling indicates that electrifying the economy and increasing renewable electricity could create significant security of supply issues by 2050, meaning Aotearoa would need considerably more storable energy capability.

There is also a substantial body of expert advice from international institutions. The Energy Transitions Commission released a report in September 2020 outlining three 'critical priorities' for nations in the 2020s, in the run up to the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 26 in November 2021.²⁷ The priorities identified are:

1. Speed up deployment of proven zero carbon solutions
2. Create the right policy and investment environment for technology diffusion
3. Enable the emergence of the next wave of zero carbon technologies

The above are a selection of the many reports that have been developed, not an exhaustive list. There are many other useful sources of information. However, these reports offer a combination of insightful recommendations to government, and others, for how Aotearoa could transition to a low-emissions economy.

18.4 Conclusion

Our advice on policy direction is primarily concerned with the policies and strategies needed to meet the first emissions budget (2022-2025). However, it also considers policies and strategies that are needed now to put Aotearoa on a firm footing for meeting the second and third emissions budgets, and for meeting the 2050 target and beyond.

Meeting the budgets and the 2050 target will require a wide range of actions in every sector of the economy, across the three policy areas highlighted above – action to address barriers, pricing and investment to spur innovation and system transformation. It is also important to make sure climate policies and approaches consider the broader wellbeing of people and the environment, for current and future generations.

The following chapter – *Chapter 19: The direction of policy for Aotearoa* provides our targeted advice on where the government's action ought to be targeted.

²⁶ (BusinessNZ Energy Council, 2019)

²⁷ (Energy Transitions Commission, 2020)

18.5 References

- BusinessNZ Energy Council. (2019). *New Zealand Energy Scenarios: Navigating our flight path to 2060* (p. 74). BusinessNZ Energy Council.
https://www.bec2060.org.nz/__data/assets/pdf_file/0020/182711/Energy-Scenarios.pdf
- Canada's Ecofiscal Commission. (2017). *Support carbon pricing: How to identify policies that genuinely complement an economy-wide carbon price*. Ecofiscal Commission.
<http://ecofiscal.ca/wp-content/uploads/2017/06/Ecofiscal-Commission-Report-Supporting-Carbon-Pricing-June-2017.pdf>
- Climate Change Response Act 2002 (as at 01 December 2020), Public Act 2002 No 40, Public Act Contents – New Zealand Legislation, Date of assent 18 November 2002, Commencement see section 2 (2020).
<http://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html#LMS282029>
- Energy Transitions Commission. (2020). *Making mission possible: Delivering a net-zero economy*. Energy Transitions Commission. <https://www.energy-transitions.org/wp-content/uploads/2020/09/Making-Mission-Possible-Full-Report.pdf>
- Gillingham, K., & Stock, J. H. (2018). The Cost of Reducing Greenhouse Gas Emissions. *Journal of Economic Perspectives*, 32(4), 53–72. <https://doi.org/10.1257/jep.32.4.53>
- Grubb, M., Hourcade, J.-C., & Neuhoﬀ, K. (2014). *Planetary Economics: Energy, climate change and the three domains of sustainable development* (1st ed.). Routledge.
- He Waka Eke Noa. (2020). *He Waka Eke Noa Primary Sector Climate Action Partnership—5-year Programme Overview*. He Waka Eke Noa.
<https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/he-waka-eke-noa-primary-sector-climate-action-programme-july-2020.pdf>
- IEA. (2010). *Energy Technology Perspectives 2010* (p. 710). International Energy Agency.
<https://www.iea.org/reports/energy-technology-perspectives-2010>

Interim Climate Change Committee. (2019a). *Accelerated electrification: Evidence, analysis and recommendations* (p. 117).

https://www.iccc.mfe.govt.nz/assets/PDF_Library/daed426432/FINAL-ICCC-Electricity-report.pdf

Interim Climate Change Committee. (2019b). *Action on agricultural emissions: Evidence, analysis and recommendations*. <https://www.iccc.mfe.govt.nz/what-we-do/agriculture/agriculture-inquiry-final-report/action-agricultural-emissions/>

International Energy Agency. (2017). *Real-world policy packages for sustainable energy transitions: Shaping energy transition policies to fit national objectives and constraints* (IEA Insight Series). International Energy Agency. <https://webstore.iea.org/download/direct/1027>

McMeeking, S., Kahi, H., & Kururangi, G. (2019). *He Ara Waiora: Background paper on the development and content of He Ara Waiora*. The Treasury. <https://ir.canterbury.ac.nz/bitstream/handle/10092/17576/FNL%20%20He%20Ara%20Waioara%20Background%20Paper.pdf?sequence=2&isAllowed=y>

Ministry for the Environment. (2019a). *Cabinet paper: Transition to a low emissions economy: The Government's response to the Productivity Commission's Low Emissions Economy report*. <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/Transition%20to%20a%20low%20emissions%20economy%20-%20The%20Governments%20response%20to%20the%20Productivity%20Commissions%20Low%20Emissions%20Economy%20report%20-%20Proactive%20Release%20%281%29.pdf>

Ministry for the Environment. (2019b). *Transitioning to a low-emissions future: The Government response to the Productivity Commission's Low Emissions Economy report* (Info 908).

Ministry for the Environment.

https://www.productivity.govt.nz/assets/Documents/c3bc644f30/Government-response_Transitioning-to-a-low-emissions-future-v2.pdf

Ministry for the Environment. (2020). *Emissions reduction targets and emissions budgets in the New Zealand Emissions Trading Scheme*. <https://www.mfe.govt.nz/reforming-nzets-emissions-reduction-targets-and-emissions-budgets>

New Zealand Productivity Commission. (2018). *Low-emissions economy: Final report*. New Zealand Productivity Commission.
https://www.productivity.govt.nz/assets/Documents/lowemissions/4e01d69a83/Productivity-Commission_Low-emissions-economy_Final-Report_FINAL_2.pdf

OECD. (2013a). *Effective Carbon Prices*. OECD. https://read.oecd-ilibrary.org/environment/effective-carbon-prices_9789264196964-en

OECD. (2013b). *Climate and carbon: Aligning prices and policies* (OECD Environment Policy Paper No 1). OECD. <https://www.oecd-ilibrary.org/docserver/5k3z11hjpg6r7-en.pdf?expires=1600039314&id=id&accname=guest&checksum=DF862209000475528981C073A5B9756D>

Parliamentary Commissioner for the Environment. (2019). *Farms, forests and fossil fuels: The next great landscape transformation?* Parliamentary Commissioner for the Environment.
<https://www.pce.parliament.nz/media/196523/report-farms-forests-and-fossil-fuels.pdf>

Smit, J., & Stevenson, T. (2020). *Briefing to incoming Government Ministers on climate action priorities* (p. 42). Sustainable Business Council, Climate Leaders Coalition.
<https://www.sbc.org.nz/resources/reports/sbc-reports/Briefing-on-Climate-Action-Priorities-3pm-Release-Version.pdf>

The Aotearoa Circle. (2020). *Fenwick Forum: Report 2020* (p. 37). The Aotearoa Circle.
<https://www.theaotearoacircle.nz/news/fenwick-forum-2020>

Verde, S., & Kardish, C. (2020). *Achieving Zero Emissions Under a Cap-And-Trade System* (Policy Brief Issue 2020/26). Florence School of Regulation, European University Institute.
https://icapcarbonaction.com/index.php?option=com_attach&task=download&id=695