NV Test: A Zero Carbon Act for New Zealand:

Revisiting Stepping stones to Paris and beyond

May 2018

This report has been produced pursuant to subsections 16(1)(a) to (c) of the Environment Act 1986.

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Acknowledgements

The Parliamentary Commissioner for the Environment is indebted to a number of people who assisted him in bringing this report to completion. Special thanks is due to Karen Lavin, who led the project, supported by Kelsey Serjeant, Onur Oktem, Sarah Fordham, and Shaun Killerby.

The Commissioner is also grateful to the following individuals and organisations for their time and assistance during the preparation of this report:

- Client Earth, UK
- Guardians of the SuperFund
- Jonathan Brearley
- Ministry for the Environment
- Parliamentary Counsel Office
- Productivity Commission
- Richard Macrory
- United Kingdom Committee on Climate Change; in particular Lord Deben and David Joffe

Finally, the Commissioner wishes to thank the following individuals for their time and expertise in reviewing an earlier draft of the report:

- Adrian Macey, Victoria University of Wellington
- Alexander Gillespie, University of Waikato
- Andrew Butler, Russell McVeagh Andy Reisinger, New Zealand Agricultural Greenhouse Gas Research Centre
- Brian McCulloch, Independent
- Judy Lawrence, Victoria University of Wellington
- Sam Fankhauser, London School of Economics
- Tony Grayling, United Kingdom Environment Agency

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Foreword

In July last year, my predecessor, Dr Jan Wright, delivered her final report as Parliamentary Commissioner for the Environment. In that report she recommended that New Zealand should follow in the footsteps of the United Kingdom (UK) and legislate for a process whereby progressive and permanent reductions in greenhouse gas emissions could be achieved over time.

The UK Climate Change Act 2008 enacted a long-term emissions reduction target and then elaborated a process whereby a succession of progressively lower carbon budgets are set to put the economy on a trajectory to meet that long-term target. Dr Wright described these carbon budgets as 'stepping stones' and picked up the idea in the title of her report: Stepping stones to Paris and beyond: Climate change, progress, and predictability. Her report came 18 months after the Paris climate summit. In the intervening period there had been a great deal of international activity as governments set about implementing policy initiatives to deliver on the Nationally Determined Contributions (NDCs) they had offered in the course of the summit negotiations. New Zealand was no exception. Dr Wright noted that:

> "Many have criticised our 2030 target as being not ambitious enough. For me, the bigger issue is how we chart a pathway to that target and beyond. How do we change the direction in which we are travelling and make large and lasting reductions in our greenhouse gas emissions?"

In proposing the UK formula of a legislated target and carbon budgets, Dr Wright was promoting a statutory process that would maintain pressure on policy makers to keep the long-term goal of emissions reductions at the centre of their attention. Her enthusiasm for the UK approach did not surprise me. Over the seven years that I led the environment programme at the OECD, one of the questions most frequently asked by countries wrestling with climate policy was: What is best practice? What national policy setting would you recommend that we study?

We were able to point to many interesting policy innovations at the micro level in many economies. But for an approach that tried to chart a long-term emissions trajectory and provide the policy stability needed to encourage investment in a low carbon economy, the UK's approach stood out as being exceptional. However, Dr Wright was acutely aware that implementing such machinery in the rst place required a level of political commitment that was out of the ordinary. That had occurred in the 2005–2008 period in the UK when a conservative opposition party decided to take the lead in calling for a new approach. In the end, the UK Climate Change Act was adopted by the House of Commons 463 votes in favour, three against.2 Reflecting on the New Zealand context, she expressed this reservation:

> "I would not want such a law to scrape through in Parliament. Support across political parties is vital. Climate change is the ultimate intergenerational issue, and governments change."

Barely three months after issuing her report, Dr Wright retired and a new Government committed to implementing the broad thrust of her recommendations took office. In succeeding Dr Wright, I have had to consider whether I can usefully contribute to the building of that cross-party support which she called for. I have concluded that I can in two ways. In the rst place, a large amount of material was gathered to inform the Stepping Stones report, not all of which was included in the report. Some of this additional material may provide useful context as policies are developed.

Secondly, now that her proposal for a Climate Commission is to be put to the test of parliamentary acceptance, it may be useful to say more about the key design features that will have to be addressed. Since the whole purpose of a UK-style legislative mechanism is to underwrite policy consistency and predictability over lengthy time periods, its consequences needed to be thoroughly debated and understood in advance. While there are many similarities between the constitutional arrangements of both countries, our emissions challenges are very different. So are the political circumstances in which reform is being attempted. In short, legislating for a Climate Commission in New Zealand will not be a simple carbon copy of the UK model.

My comments in this report build on Dr Wright's recommendations and try to highlight some of the challenges and trade-offs that will need to be considered in developing a system of legislated targets and carbon budgets that makes sense of New Zealand's particular circumstances. Some of these will no doubt be dif cult to resolve. But we are better to thoroughly debate them now, and reach a durable accommodation, than legislate for a procedure that does not stand the test of time.

Simon Upton
Parliamentary Commissioner for the Environment

Wāhinga kōrero

I te Hōngongoi o tērā tau, i tukuna e te Kaikōmihana tōmua, a Dr Jan Wright, i tana pūrongo whakamutunga hei Kaitiaki Taiao a Te Whare Pāremata. I roto i taua pūrongo i tūtohu ia me whai a Aotearoa i ngā tapuwae o Peretānia. Arā, me whakature i te tukanga kia tutuki ai ngā whakahekenga kaneke, pūmau hok o ngā putanga haurehu kati mahana.

I whakature te Ture Panoni Āhuarangi o Peretānia 2008 i te whāinga whakaheke putanga haere ake nei. Kātahi, ka whakamārama i te tukanga e whakaritea ai ngā pūtea waro e heke ai te nui o te waro ia pūtea kia tika te rerenga o te ōhanga kia tutuki taua whāinga pae tawhiti. I kīia ēnei pūtea waro he 'tapuwae kōhatu' e Dr Wright, ā, i whakaurua taua whakaaro ki te ingoa o tana pūrongo, arā: Ngā tapuwae kōhatu ki Pārihi, ki tua atu hoki: panoni āhuarangi, te kaneke, me te āhei ki te matapae.

I puta tana pūrongo i ngā marama tekau mā waru i muri iho i te hui taumata āhuarangi o Pārihi. I waenganui i aua mea e rua, he maha ngā mahi huri noa te ao i te wā i tīmata ngā kāwanatanga ki te whakarite i ngā take kaupapa here kia ea ai ngā 'utanga ā-motu' i tukuna e rātou i te wā o ngā whakawhitiwhiti kōrero mō te hui taumata. Ko Aotearoa tētahi o aua motu. E ai ki a Dr Wright:

> "He tokomaha ngā tāngata kua kī he ngoikore tō tātou whāinga mō 2030. Ki a au nei, ko te tino take, me pēhea tātou e whakamahere ai i te huarahi ki taua whāinga, ki tua atu hoki. Me pēhea e kōrure tā tātou haere, ā, e whakapūmau ai i te whakaheke nui o ō tātou putanga haurehu kati mahana?"

I tana marohi i te tātai o Peretānia, arā te whāinga i whakaturehia me ngā pūtea waro, i whakatairangahia e Dr Wright he tukanga ā-ture e herea ai ngā kaihanga kaupapa here kia noho pū te whāinga whakaheke putanga hei kaupapa haere ake nei. Kāore taku ohorere i tana kipakipa mō tā Peretānia tirohanga. I ngā tau e whitu i ārahi au i te hōtaka tāiao ki te OECD, ko tētahi o ngā tino pātai i pātaihia e ngā motu e āta whakaaro ana mō te kaupapa here āhuarangi ko tēnei: he aha te tikanga pai rawa? He aha te kaupapa here ā-motu e tūtohu ai koe mā mātou e tirotiro?

Ka āhei mātou ki te tohu ki te maha o ngā auaha kaupapa here moroiti whakaihiihi ki ngā ōhanga maha. Engari, mō tētahi tirohanga i whakamātau ki te whakamahere i te rerenga putanga haere ake nei, ki te hoatu hoki i te kaupapa here pūmau e akiaki ai i te haumi moni ki te ōhanga waro iti, kāore he mea pai ake i tā Peretānia tirohanga. Heoi anō, i mōhio pū a Dr Wright ki te whakarite i te anga pēnei me tautoko te tino nuinga o ngā kaitōrangapū. Ehara i te mea hanga noa. I puta tēnei āhuatanga i 2005-2008 i Peretānia. I whakaaro tētahi rōpū tōrangapū āpitihana nō te taha matau kia arataki i te marohi mō te tirohanga hou. Te mutunga iho, ka whakaturehia te Ture Āhuarangi o Peretānia e te Whare o Raro e 463 ngā pōti whakaae, e toru ngā pōti whakahē.

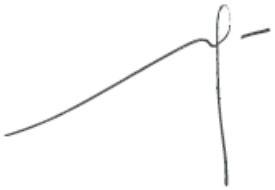
E pā ana ki Aotearoa, e pēnei ana tana potau:

> "Kāore au e pīrangi kia tata te pāhitanga o tētahi ture pēnā i te Pāremata. He mea nui te tautoko whānui a tēnā pāti, ā tēnā pāti. Ko te panoni āhuarangi te tino take tuku iho a tētahi whakatipuranga ki tētahi whakatipuranga."

A Zero Carbon Act for New Zealand

Kāore i hipa te toru marama i muri i te tukunga o tana pūrongo, i rītaia a Dr Jan Wright, ā, i noho haepapa tētahi Kāwanatanga hou ki te whakarite i te tino kaupapa o ana tūtohu. Kua āta whakaaro au mēnā e āhei au ki te whakarewa i te tautoko whānui a tēnā rōpū tōrangapū, a tēnā rōpū tōrangapū i karanga ai ia. Kua whakatau au e rua ngā kaupapa e taea ai e au. I te tuatahi, he maha ngā rauemi i kohikohia hei whakamārama i te pūrongo Ngā Tapuwae Kōhatu kāore i uru ki taua pūrongo. Mā ētahi o aua rauemi pea e āwhina i te wā e whakaritea ana ngā kaupapa here. Tuarua, i te mea ka whakamātauria tana tūtohu mō te Kōmihana Āhuarangi e te Pāremata, he pai pea ki te kōrero mō ētahi o ngā āhuatanga hoahoa kia whakaarohia. Nā te mea ko te tino take o te tukanga ture pērā i tā Peretānia hei tūāpapa kia ōrite ngā kaupapa here, kia āhei hoki te matapae haere ake nei. Me mārama rāwa, me taupatupatu rawa ngā tukunga iho. Ahakoa he tini ngā ōritetanga o ngā whakahaerenga ture kāwanatanga o ngā motu e rua, he tino rerekē ā tātou wero mō ngā putanga. He tino rerekē hoki ngā āhuatanga tōrangapū i te wā e whakamahia ana te whakahoutanga. Nā, ehara te whakature i te Kōmihana Āhuarangi i Aotearoa i te tārua noa iho o te tauira o Peretānia.

Kua noho aku kōrero i roto i tēnei pūrongo i runga i ngā tūtohu a Dr Wright, ā, e whakamātau ana ki te miramira i ētahi o ngā wero me ngā whāritetanga hei whakaarotanga mō te whakarite i te pūnaha whakature i ngā whāinga me ngā pūtea waro e tika ana mō Aotearoa. Kāore e kore he uaua te whakaea i ētahi o ērā. Heoi anō, he pai ake te āta wānanga ināianei, kia pūmau ai te whakaaetanga i te whakature, i te tukanga e pāhekeheke ai.



Simon Upton
Te Kaitiaki Taiao a Te Whare Pāremata

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Part 1

What's different about New Zealand?

Inevitably, the context in which New Zealand seeks to establish a Climate Commission is different from that which prevailed a decade ago in the United Kingdom (UK). In one important respect – the negotiation of the Paris Agreement in late 2015 – the case for serious long-term action has only strengthened. But beyond that we need to be aware of the differences that exist between two very different-sized economies with very different emissions profiles and different political dynamics. We also need to be able to take stock of some of the lessons that can be learnt from the UK's experience. In this section, I have sought to tease out some of these differences, as well as reflect on the experience of the UK over the first decade of the Climate Change Act's implementation.

1.1 The policy-making context

Inevitably, the context in which New Zealand seeks to establish a Climate Commission is different from that which prevailed a decade ago in the United Kingdom (UK). In one important respect – the negotiation of the Paris Agreement in late 2015 – the case for serious long-term action has only strengthened. But beyond that we need to be aware of the differences that exist between two very different-sized economies with very different emissions profiles and different political dynamics. We also need to be able to take stock of some of the lessons that can be learnt from the UK's experience. In this section, I have sought to tease out some of these differences, as well as reflect on the experience of the UK over the first decade of the Climate Change Act's implementation.

New Zealand's approach to climate change policy since the mid-1990s has not lacked for sophistication. Over the course of nearly a quarter of a century New Zealand has explored both carbon taxes and emissions trading schemes (finally adopting the latter in 2008). It has played a major role both domestically and internationally in developing the means to account for forest sinks, and it has been keenly engaged in international conversations on emissions trading.
A common theme throughout – from both governments and businesses – has been the need to achieve emissions reductions at the least cost. New Zealand has seen itself as a very small, exposed trading nation whose competitiveness should not be put at risk. To this should be added a preference for market-based instruments that stems back to the economic reforms of the 1980s. This context explains, at least in part, some or all of the following features of New Zealand's approach to climate policy:

- There has been a dominant view that price-based mechanisms will incentivise changes more efficiently than politicians developing sectorally specific policies.
- There has been a clear view that all sectors and all gases should be priced equally, that all reductions and removals are of equal worth, and for that reason it doesn't matter where or in what sequence emissions occur. In other words, our policy has been built on an assumption that all gases are fungible. Notwithstanding this, agricultural emissions have been consistently left out of any attempts to price emissions because they are viewed as particularly difficult to deal with.
- It has been accepted from the outset that sequestration of carbon in trees is a valid offset for emissions. The rationale for relying on forest sinks in the short to medium term has been justified on the basis that it would provide a bridge to the emergence of emissions reduction technologies that in the short term are not cost effective. There has been less acknowledgement that forest sinks are limited and cannot provide a truly permanent solution.
- The estimated economic cost of emissions reductions at home has justified extensive reliance on offshore credits to meet international commitments – more so than most other countries.

From the outside, New Zealand's policy record on climate change reads very much as one of developing sophisticated policy tools but not being prepared to deploy them in a way that will 'bite'. While the policy efforts of successive governments over a 20-year period finally settled on the centrality of an emissions trading scheme (ETS) as a core policy tool, there was no agreement on a long-term national goal or a process for progressively moving towards it.

The ETS has been operated with muted price signals and consequently had little effect. Measures taken in 2009 eliminated any meaningful cap and diluted by half the requirement to surrender emission permits. This removed the signal to investors and businesses that they needed to plan for future carbon price increases, and instead created uncertainty. Instead of an expected growth in afforestation, there was deforestation over the period.

In other words, policy has been 'dialled back' waiting for the rest of the world to move. Strong economic and population growth saw emissions rise almost continuously over the period. As a result, the path dependency of existing emissions-intensive technologies has not been significantly deflected.

As my predecessor noted, the UK's legislated solution of a long-term target with a process for agreeing diminishing carbon budgets to achieve it was passed with widespread cross-party support. There is no denying the very specific political dynamic that took hold in the 2005–2008 period. A conservative opposition leader, David Cameron, took the lead in calling for a more concerted and aggressive policy response providing the cover that a willing government needed.

It would be tempting to conclude that the only thing standing between New Zealand and the sort of approach taken by the UK is a deficit of political will and consensus. While the importance of cross-party agreement should not be underestimated, neither can the wider policy context be ignored.

The UK developed its Climate Change Act as a Member of the European Union (EU), a large group of countries with a strong tradition of pursuing environmental policies in a consistent and coordinated way. While the UK's initiative in setting up the Climate Change Act was inspired in part by a desire to take a leadership position (both within Europe and globally), it did so within the context of an extensive climate policy framework that had been developed at the European level.

In advising on the level at which the initial carbon budgets should be set, the UK Committee on Climate Change used as its baseline the 2020 target required under the EU framework (20% reduction by 2020). The Committee considered that it was best not to depart from the EU framework for the first three budgets "given inertia and lead times for policy development and innovation."4 Therefore, it was the EU framework that was already in place that defined the level at which these budgets were set, not the 2050 target in the UK Climate Change Act.

1.2 Displaying global leadership

A further difference in the policy context is the part played by ambition for global leadership. The EU and its large industrialised member economies like the UK have long acknowledged their historical responsibility for accumulated emissions. In pushing for an emissions reduction target of −60% by 2050 (deepened to −80% during the enactment process), British parliamentarians bought into a view that can be found in much analysis at the time concerning the need for advanced economies to take the lead in reducing emissions.

The case for leadership was not advanced lightly. Even though the UK is a G7 economy, its policy makers knew that success in curbing global emissions ultimately depends on what happens in large developing economies such as China and India. The 80% target was based on the notion of convergence towards a much lower level of per capita emissions that implied early action by developed economies with the resources to do so.5 A variety of justifications were offered, ranging from the desire for technological leadership to trying to persuade developing countries to take action as well. Whatever the motivation, there was a well-grounded conviction that if a major G7 economy like the UK couldn't make progress, there was little reason to expect any other country to.

Furthermore, the UK was in a position to provide leadership. The then Prime Minister, Tony Blair, placed climate change at the top of the agenda for the 2005 G8 Summit that was hosted by the UK. In the immediate aftermath, his Government announced a major review of the economics of climate change led by Sir Nicholas Stern with the support of a team of economists from the UK Treasury. The Stern Review, as it became known, played a hugely influential role in making the economic case for climate action and underscoring the case for UK leadership.[1]

1.3 Acting domestically

In line with the idea of taking global leadership, the UK (like the EU) has taken the view from the outset that the bulk of any mitigation action should be undertaken domestically. This has increasingly become entrenched in international expectations.
The Kyoto negotiations had raised hopes of an ambitious global carbon market.
By contrast, the Paris Agreement – while keeping the possibility of 'internationally transferred mitigation outcomes' alive – started from a much more domestically based premise.10 By securing the agreement of all parties to take action to reduce emissions and instituting a process whereby voluntary national commitments to reduce emissions would be regularly reviewed and updated, the global community committed itself to a fundamentally different 'bottom-up' approach to motivating climate action.
New Zealand was an enthusiastic supporter of this new logic of country-driven action. But it has not over the years matched that with an enthusiasm for domestic action. Between 2008 and 2012 New Zealand met a significant part of its commitment under the first budget period of the Kyoto Protocol by retiring units sourced from overseas.11 Many of these units are now widely regarded to have been of dubious value in terms of actual emissions reductions (so called 'hot air').12
Even if New Zealand is still free to decide how much it will rely on offshore credits, it has to find them. The future availability of credible offshore credits is highly uncertain.

1.4 Emissions trends

It is always easier to set about solving a problem when there are readily available solutions at hand and when taking action runs with the grain of pre-existing trends. This is undeniably the fortunate position in which the UK found itself in the early 2000s. Figure 1 shows that emissions in the UK were steadily decreasing. [2]

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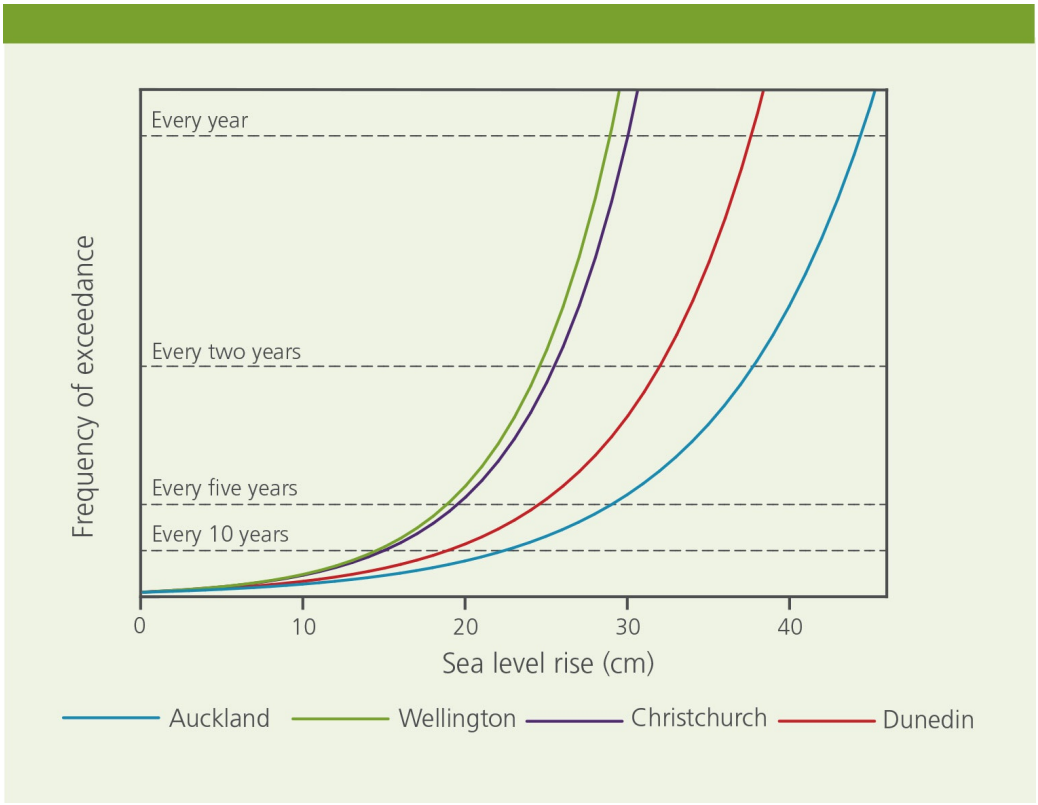

Figure 1: UK net emissions have been on a downward trajectory since 1990 [3]

Part 2

Elements to consider in the establishment of a Zero Carbon Act in New Zealand

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2.1 How should we go about setting a target?

The cornerstone of any new legislation will be the enactment of a long-term emissions reduction target.

The UK Climate Change Act not only sets a target, but also a process for amending it. The target can only be amended following parliamentary scrutiny and assent, and only if there are 'significant developments' in scientific knowledge about climate change, or following changes to European or international law or policy.24 In addition, the responsible Secretary of State must also seek and then consider advice on the target that has been provided by the Committee on Climate Change.25

New Zealand has outlined a number of emissions reductions targets over the years. However, none of them are legally binding domestically; there is no requirement in law for the Minister responsible for climate change or anyone else to take any action to meet them.26 These targets can be amended by the Minister at any time for any reason, without parliamentary scrutiny.

Defining a target in primary legislation would give it greater legal effect than if it were simply created by regulation. Setting out a transparent process for amending a target requiring the disclosure of clear reasons for proposing such a step and seeking parliamentary assent would instil a discipline that would discourage arbitrary changes of ambition in response to short-term considerations. This would in turn underwrite the sort of stable policy environment needed to encourage businesses, investors and consumers to make decisions that internalise the need for long-term emissions reductions.

To make the obligation unequivocal and certain, such a target should be specific. It would ideally be expressed as a percentage reduction of defined greenhouse gases against a baseline year, specifying the year by which these reductions must be made, and stipulating whether emissions are based on gross or net values.27

The precise language used in the UK Act to outline the target, and the clearly defined terminology, prevents any interpretation that the target is purely aspirational. As noted by one legal commentator:

> "Anyone, lawyer or non-lawyer, reading section 1 can readily understand the essential government commitment being made, and the public understanding of these long-term duties and its consequent ability to maintain pressure for political action is not to be underestimated."

If a target is to be outlined in law, and difficult to amend, then the question becomes: What should New Zealand's target be? This is both a political question and one that is dependent on some very significant scientific judgements. Every effort should be made to find an answer that can command cross-party support. I offer the following observations to those who will be considering this important question.

The starting point for such a consideration must be the commitment made by all countries at the Paris Climate Summit in 2015. The overarching aim of the Paris Agreement is to hold the increase in global temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit it to 1.5°C. To achieve this temperature limit, all countries agreed to aim to "achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century…"29

Some reference to this internationally negotiated end point seems both legitimate and plausible, given that all parties represented in the current Parliament appear to have endorsed the Paris Agreement. But such a general formulation, intended as a global outcome, is not by itself necessarily very helpful as a legislated target against which to measure domestic progress through progressive budgets. The relationship between international commitments and domestic targets is discussed in Box 1.

As part of the Paris process, New Zealand has committed to a target to reduce emissions 30% from a baseline of 2005 by 2030. While any target that is seriously pursued would be better than a merely aspirational one, 2030 does not really qualify as a 'long-term' target. It is only 12 years away. It is worth recalling that when the UK Act was enacted, its target for 2050 was more than four decades distant. Given the wording of the Paris Agreement – "in the second half of the century" – a date later

Box 1: Targets – domestic and international

Setting a target can be a useful way of providing a clear end-point on which policies can be focused and against which progress can be assessed. To be useful, a target has to be crystal clear – otherwise it will be open to interpretation and potentially challenged. In the case of greenhouse gas emissions, a domestic target would ideally be expressed as a percentage reduction of defined greenhouse gas emissions by a specified year in comparison with a baseline year. This is what the UK did in legislating for an 80% reduction in 2050 emissions below their level in 1990.31

It is important to understand the way in which domestic target-setting relates to the output of international climate negotiations. These have evolved over the last 20 years. Under the Kyoto Protocol of 1997, countries agreed to bind themselves to specified percentage emission reductions over a 1990 base year by the end of a five-year budget period (2008 to 2012). New Zealand agreed to a reduction to 1990 levels during this first 'budget period'. This was commonly referred to as New Zealand's 'target'. The combined effect of all the negotiated percentage reductions (which covered all so-called developed economies) at the global level was 5.2%.

It was the Kyoto invention of five-year budget periods that was picked up in the UK's legislation, which was being debated at the time the world was preparing for the 2008 Copenhagen climate conference. The Copenhagen conference aimed to strengthen the process launched at Kyoto and devise a system to progressively engage all countries. That attempt failed. While a second budget period covering the period 2013–2020 was negotiated in 2012 at Doha, the number of countries agreeing to be bound by fresh targets diminished. New Zealand was among those countries that did not take on fresh targets.

The idea of negotiating nationally binding targets that extended to all countries withered in the aftermath of Copenhagen. After seven years of negotiations, a fresh basis for making international progress was agreed at Paris in 2015. Rather than negotiate national targets, countries agreed on a system of national pledges (called Nationally Determined Contributions or NDCs) to be followed by five-yearly reviews of progress and fresh pledges of NDCs. The system of top-down five-year budget periods morphed into a system of bottom-up five-yearly pledges.

Importantly, the Paris Agreement was embraced by all countries.32 It was only possible because the level of any NDCs was not subject to negotiation. An NDC is a voluntary pledge that a country makes in good faith and that it expects to be able to keep. But there is none of the (somewhat utopian) enforcement machinery that was envisaged at Kyoto but never operationalised. At Paris, New Zealand offered as an NDC to reduce emissions 30% from a baseline of 2005 by 2030.

2.2 What responsibilities should the Commission have?

The responsibilities of New Zealand's Climate Commission will need to be clearly set out in the Zero Carbon Act to provide the Commission with a firm mandate from which to operate. The following section outlines key areas that should be carefully considered prior to drafting the Act.

Responsibility for determining carbon budgets

In the UK, while the Committee on Climate Change has many significant advisory functions relating to carbon budgets, it has no executive functions. During debates on the UK Climate Change Bill there were calls for the Committee to have more executive functions, including the power to set budgets. This was explicitly dismissed by parliamentarians:


N
Porirua
Naenae
Lower Hutt
Petone
Waiwhetū
Seaview
Ngaio
WELLINGTON
Days Bay
Eastbourne
Te Aro
Miramar
Kilbirnie
Seatoun
0 1 2 4
Kilometres
Land Elevation
< 50cm
50–100cm
100–150cm

Part 3

Summary and Recommendations

3.1 How should we go about setting a target?

If I have one recommendation that may seem to go beyond matters of design and process, it is that which concerns setting an emissions reduction target. It is at the core of the UK's legislation and will be unavoidably so in any New Zealand counterpart. Because targets and timetables to meet them have real economic and social consequences, setting them has the potential to be very contentious. So the way Parliament goes about enshrining targets in legislation could be very important.

I have detailed several ways in which the UK's and New Zealand's circumstances diverge. Several of these suggest that the process of setting succeeding carbon budgets – 'stepping stones' in my predecessor's language – may be more challenging than that encountered in the UK, at least at the outset.

In one important respect, however, New Zealand starts with a more favourable international context. While the sponsors of the UK Climate Change Act saw themselves holding the torch of climate leadership as they set about developing their legislation, its enactment came on the eve of the failure of the Copenhagen climate summit and the biggest financial crash in two generations. It turned out to be a less than auspicious moment.

New Zealand, by contrast, contemplates legislation following the remarkable progress towards global action taken at the Paris climate summit in 2015 and as the global economy is finally returning to a solid growth path. Indeed, the scale of the required transition to a low carbon economy is a huge potential source of growth and employment as infrastructure is re-wired and completely new ways of doing business are pioneered. It should be a much more optimistic moment to commit to long-term action.

Even more importantly, as a result of the Paris Agreement, there is broad cross-party support for the Paris goal of 'net zero in the second half of the century'. So there is a solid starting point for gaining agreement on what sort of target to legislate. But any long-term target or targets will need to be more precisely defined if they are not to be open to interpretation.

New Zealand's atypical emissions profile makes this even more important.

The development of more specific targets consistent with the over-arching Paris goal should be based on the most up-to-date scientific knowledge, and should consider the speed and endpoint of reductions for the different greenhouse gases, as well as the treatment of removals by sinks. This will require careful analysis.

Footnotes

1. Smith, J. D. (2009). Research ethics in New Zealand: A student guide. Wellington, New Zealand: Rata Press.

2. Smith, J. D. (2009). Research ethics in New Zealand: A student guide. Wellington, New Zealand: Rata Press.

3. Smith, J. D. (2009). *Research ethics in New Zealand: A student guide.* Wellington, New Zealand: Rata Press.