Submission to
Climate Change Contribution Consultation

1. Consultation Process: Inadequate Information for INDC

New Zealand has committed to providing the UNFCCC with a self-generated climate change mitigation target for the post 2020 period – known as an Intended Nationally Determined Contribution (INDC). The consultation document produced by MFE in association with this is directed at gathering responses to what that target should be.¹

While providing some background and setting out objectives for arriving at an INDC, the document is inadequate in a number of ways, but critically it fails to provide the information necessary to inform a judgement about what is an appropriate target.

Key information gaps include:
- Projected emissions by sector through the period;
- Projected marginal abatement costs for individual measures and resulting cost curves, including assumptions;
- Projected fiscal costs of potential measures; and
- Declaration by the Government of a preferred accounting basis to be used for its INDC.

The document is also inadequate for its failure to outline any scenarios for emissions reduction that would integrate abatement options in a cohesive and consistent package of measures that could be considered as a whole.

In order to begin to fill the gaps, the Sustainability Council wrote to the Minister for Climate Change Issues to request such information. This has not been made available prior to the closing time for submissions. In absence of such baseline information, it would be unreasonable to expect submitters to nominate an INDC.

Mitigation Costs: A Specious Proxy

In partial recognition of the major information gaps, the document instead frames its key question around a proxy for the target. Question 3 asks “What level of cost is appropriate for New Zealand to reduce its greenhouse gas emissions?” To emphasise this proxy relationship, next to the question are a series of modelled results commissioned from Infometrics for the consultation. These set out an estimated cost to each household for targets ranging from –5% to –40% of 1990 level emissions, with results showing a cost of 1.5% to 2% of household consumption.²

¹ MFE, New Zealand’s Climate Change Target, May 2015.
The biggest problem with this proxy is that the modelling is specious by design. The parameters set for the modelling by the Government render its output largely useless for serious analysis.

**Agriculture**

The potential for abatement of agricultural emissions is excluded entirely from the modelling despite these accounting for close to half the nation’s emissions and there being significant potential for their abatement. The one publicly available, independent examination of agricultural and other abatement costs across the economy (conducted by ICF International in 2007) delivered the following results:

- Agriculture accounted for over 60% of the 5.2 Mt per year of emission reductions that ICF estimated to be available for $30/t or less by 2010.
- All the potential emission reductions identified by ICF that cost $30/t or less were estimated to be available at a profit to the farmer, whether or not there was any emissions tax incentive in place.

The modelling for the consultation excludes agriculture not on the grounds that there are no economic abatement options, but because: “Agricultural emissions do not face a surrender obligation in New Zealand”. In other words, rather than providing an assessment of the least cost option for meeting an INDC, the modelling instead deliberately excludes an option that is capable of delivering a large block of low cost abatement. This means that the cost to New Zealand of meeting a particular target is biased upwards as it then has to rely on higher cost sources of emissions savings.

This is a complete inversion of the purpose of such economy-wide modelling. The key result one is looking for in this form of analysis is how much can be saved across as wide a range of options as possible at a particular carbon price. To conduct economy-wide modelling but exclude nearly half the sources of emissions is nonsense if least cost is being sought. It elevates a current ETS setting (that of not taxing agricultural emissions) to the status of a fixed constraint and effectively the sole mechanism open to government that could stimulate abatement, when this is not the case.

**Forestry**

New Zealand’s largest potential for reducing net emissions is through forestry. And yet the Infometrics modelling was instructed to be carried out so that: “mitigation through forestry and land use has not been quantified or included in modelling estimates presented in this report”.

From discussion with the Infometrics report author, it is important to clarify that:

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7 Personal Communications, Adolf Stroombergen, 19 and 26 May, 2015.
The modelling allowed no price response to forestry, so that no matter how high the carbon price was set, there would be no additional afforestation or avoided harvesting.

- A fixed quantity of sequestration was assumed such that forestry was making a positive impact on the quantity of emission reductions required to meet a particular target level.

To hold the forest sequestration contribution fixed at a predetermined level, no matter what the price on carbon, is once again to defeat the purpose of the modelling – and to do so for a sector as important as forestry is to make the results even more meaningless for policy design purposes.

When MFE was asked at a public meeting whether the agricultural and forestry assumptions were imposed by the ministry or its minister, after initially deferring, the response at the end of the meeting was that the ministry had given the instructions.8

**Overall Effect**

By removing any ability for the model to respond to the change that rising carbon prices could have on agriculture and would surely have on forestry, the effect is to seriously bias upwards the costs of adopting any particular target for the 2020s.

A further notable problem is the absence of counterfactual costs – those that would be imposed by rising heat resulting from climate change in absence of global mitigation contributions. An estimate of these would allow consideration of the net costs of acting, as opposed to simply the cost of abating emissions.

Overall, the model results delivered are next to useless when making judgements about an appropriate INDC. Thus the consultation document’s implicit proposal to use the model’s costs of abatement as a proxy is unviable.

**International Cost Comparisons Artificially Constrained**

The consultation document suggests that a further factor to take into account when setting the INDC is comparative costs in abating emissions between countries. It makes reference to modelling work that claims “for the same level of cost as the European Union’s target, New Zealand’s target would be approximately 10 to 20 per cent above 1990 levels” and that it would be “between 15 per cent above 1990 levels to 10 per cent below 1990 levels” when compared with the US target.

Information supplied by MFE in response to a request for the assumptions behind the calculations provided some clarification but did not show marginal abatement costs for each measure or sector, or even the economy-wide cost.9

The information does confirm that agriculture abatement opportunities were included (in contrast to the Infometrics modelling) but without knowing the particular measures included for the agriculture sector and their estimated costs, it is

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8 Guy Beatson, MFE, 19 May 2015.
impossible to determine how reasonably this mirrors abatement potentials documented in the literature.\textsuperscript{10}

It also confirms that forestry sequestration is completely excluded from the modeling. This alone seriously biases the cost of abatement in New Zealand as it is a very large and low cost option (that portion available at up to $50/t). No reason is provided in the material for the exclusion. The effect is to significantly raise the cost of New Zealand meeting a particular level of abatement, and so a target equivalent to that for the EU or US. On these grounds alone, before considering the effect of a possible under-representation of the potential to abate agricultural emissions, the comparative cost modelling is an unreliable input to considering an appropriate INDC.

\section*{Soaring Gross Emissions and Major Harvesting Liabilities}

New Zealand’s soaring gross emissions are quietly acknowledged as being 21\% greater today than in 1990 and there is a muffled reference to them being 36\% above 1990 by some unspecified date – presumably in the 2020s.\textsuperscript{11} All but absent from the discussion, however, is reference to the explosion of forestry harvesting emissions in the 2020s and their significance in New Zealand’s carbon accounts.

New Zealand has well missed its targets for the first two commitment periods – a 20\% gross emissions excess for the Kyoto period from 2008 to 2012 and a projected 33\% excess for that to 2020. However, it plans to offset those excesses with carbon credits from trees that are absorbing carbon today, but are planned to be cut down in the 2020s when the bulk of the carbon will then be released again. The Sustainability Council has been warning since 2008 that the bill for those periods is being put on the Visa card – and that it comes due in the post-2020 period that the INDC covers.

Including payback for forest credits, New Zealand’s emissions for the period from 2021 to 2030 are officially projected to result in an overshoot of 350 Mt, or 55\% above even the current target level of minus 5\%.\textsuperscript{12} The Treasury calculates a slightly lower figure for same period and target – a 315 Mt excess – as an example in its briefing to the incoming government.\textsuperscript{13} And it warns that carbon prices will be considerably higher during this period - expecting them to be between $10 and $165 a tonne.\textsuperscript{14} So for a target no more ambitious than the current one, the Treasury shows that this could cost New Zealand between $3 billion and $52 billion.

The basis for formulating an INDC that was agreed at the Lima UNFCCC summit leaves wide flexibility for each country to specify how it is going to include the land

\textsuperscript{10} For details on potentials see chapter 9: Geoff Bertram and Simon Terry, \textit{The Carbon Challenge}, Bridget Williams Books, 2010. \\
\textsuperscript{11} Consultation document, pages 10 and 14. \\
\textsuperscript{12} This is based on official figures that assume the current Kyoto Protocol rules. \\
\textsuperscript{13} The Treasury’s costs figures assume a value for the overshoot of 315 Mt, which is 10\% below the 350 Mt that current projections show. At 350Mt, the range of costs extends to $58 billion. \\
\textsuperscript{14} The Treasury, \textit{Climate Change - Important Decisions Between Late-2014 and Mid-2015}, November 2014, \texttt{www.treasury.govt.nz/publications/briefings} The European Commission and the UK government are planning on the assumption that carbon prices will be NZ$40/tonne in 2020 and steadily rise to between NZ$150 and nearly NZ$600 a tonne by 2050 - UK Committee on Climate Change, \textit{Fourth Carbon Budget Review – Part 2}, December 2013.
use sector that forestry emissions form a part of.\textsuperscript{15} A clear requirement for accounting integrity will be to ensure that whatever basis is selected for inclusion of the sector in the INDC that this is consistent with, or made equivalent to, that employed in earlier periods.

**Way Forward**

The consultation has not brought forward the information necessary to inform a judgement about what is an appropriate INDC as the Government has elected to withhold that material. The Sustainability Council has had considerable difficulty over the years obtaining certain baseline information and such withholding or slow release inhibits an informed civil society and its contribution to policy formation.\textsuperscript{16}

The programme of reform that is required for climate change policy development will assist with this information flow as part of properly equipping New Zealand to make the shift to a low carbon economy. The key changes involve new institutional architecture and processes, as first proposed by the Council in 2012:

- **A Carbon Budgeting process** to detail the expected carbon flows across the economy and how these can be reduced by practical actions. It takes targets, assesses the options, and describes an overall plan for achieving those outcomes. It integrates pricing tools such as the ETS with complementary measures.\textsuperscript{17}

- **An independent Climate Commission** to undertake the budgeting process and recommend Carbon Budgets to the Government.

- **Legislation** to establish the Climate Commission and lock in emissions reduction targets at key intervals. In between these milestones, a series of five-year budgets are progressively struck that guide decarbonising of the economy within the legislated boundaries.\textsuperscript{18}

These proposals are further outlined in the attached briefing.

Contact:
Sustainability Council
PO Box 24304, Wellington
T: 04-9133655
E: council@sustainabilitynz.org

\textsuperscript{15} See Paragraph 14 of the Lima Call for Climate Action, states: “The Conference of the Parties...Agrees that the information to be provided by Parties communicating their intended nationally determined contributions, in order to facilitate clarity, transparency and understanding, may include, as appropriate, inter alia quantifiable information on the reference point (including, as appropriate, a base year), time frames and/or periods for implementation, scope and coverage, planning processes, assumptions and methodological approaches including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals, and how the Party considers that its intended nationally determined contribution is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2.”

\textsuperscript{16} For details see: Simon Terry, *The Carbon Budget Deficit*, Sustainability Council, September 2012.


A carbon budget is essential to planning for serious emission reductions. It details the expected carbon flows and how these can be reduced by practical actions. The more it is recognised that pricing instruments such as the ETS are simply tools, and the real action lies in how carbon budgets are set, the greater will be the interest in converting today’s implicit budgets into explicit ones.

Decisions on climate policy, such as the detailed settings of the ETS, result in quantifiable changes in total emissions. At present, the implicit carbon budgets set by those decisions are not geared to achieving any overall emissions outcome. So New Zealand is left with emissions reduction targets but no plan to meet them.

Pressure will mount on New Zealand to actually reduce emissions and achieve quantitative targets. Carbon budgeting becomes key under these circumstances because it puts outcomes first. It takes targets, assesses the options, and describes an overall plan for achieving those outcomes.

Carbon budgets are usually driven by targets specified in legislation. In order to provide some flexibility, targets are locked in only at key intervals. In between these milestones, a series of five-year budgets are progressively struck that guide decarbonising of the economy within the legislated boundaries.

A Climate Commission
The UK has fully adopted the carbon budgeting process and has established an advisory committee to research options for the government and recommend particular budget limits. Its reports are independent and carry a depth of analysis that allows the options to be fully understood by interested parties before the UK government makes decisions. This is an important component of an open budgeting process and establishment of a Climate Commission would be part of an overall reform package for New Zealand.

The Climate Commission would be responsible for working with stakeholders to explore options and their costs, in order to devise sector action plans that build into the carbon budgets required. This process involves estimating the impact of pricing instruments and non-price regulatory measures, and testing combinations against the government’s financial constraints.

Carbon budgeting becomes the process that integrates the ETS, complementary measures, and financial limitations. It is set to become the commanding heights for domestic climate action.
Account in Carbon, Not Dollars
Carbon budgets are cast in the measure that ultimately matters – tonnes of carbon. They are budgets in the sense that they allocate a scarce commodity – the ability to emit greenhouse gases. But rather than being denominated in dollars, as far as possible they track real flows of carbon. This cuts through many of the problems that arise from accounts based on carbon credits. For NZUs are not backed by actual carbon flows and the same is true for some credits issued under the Kyoto Protocol (such as certain credits generated under the Clean Development Mechanism).

To what extent foreign credits feature in a carbon budget depends on factors such as: how ambitious the targets are, the capacity to make reductions domestically at reasonable cost, and the price and environmental integrity of the credits available. Once the full range of local emission reduction options have been costed, these can be assessed against the price and desirability of using offsetting credits.

Carbon budgeting provides a process that brings together future visions, policy preferences, short and long term options, to resolve these and issues surrounding foreign credits into a projection for how the nation’s emissions will be shaped in future. This includes working through when setting a price on carbon is sufficient, and when non-price measures need to be employed in substitute or as complementary measures. The overall set of actions becomes the plan that is embodied in a five-year carbon budget.

An early task for a Carbon Commission would involve evaluating domestic emission reduction options to allow domestic targets to be specified that would operate as minimum settings, irrespective of international obligations.

The Budget Setting Process

Research & Submissions

Climate Commission
Recommends Budget

Cabinet
Vets plan

Carbon Budget
Set by Government

Pricing Instrument (eg ETS)

Complementary Measures (Regulation)
New Zealand’s Exposed Position

During the period from 2013 to 2050, the Treasury has projected that even with the ETS as previously configured, New Zealand’s net emissions would exceed government targets by 1,131 megatonnes of carbon dioxide equivalent. That is over a billion tonnes of carbon, and the targets are weak. Net emissions peak during the 2020s and the accompanying graph shows two official projections of this.¹

Excess emissions are not manifesting as large bills to New Zealand at present because the government is offsetting excess fossil emissions by claiming credit for carbon sequestered in crop forests. However, the owners of crop forests providing those credits generally intend to fell their trees in the 2020s (hence the peak). When the forests are logged, the excess emissions that New Zealand ducked come back as a liability for a 2020s government.

Carbon prices have been low in recent times (from $20/tonne to as low as 15 cents a tonne) but are expected to be much higher in the 2020s. This risks New Zealand facing a major financial haemorrhage if the projected rise in emissions is accompanied by serious carbon prices at a time New Zealand expects to recommit to an international agreement in the 2020s.

It is not useful to imagine being just a ‘fast follower’ when New Zealand is facing an emissions cliff. Early action needs to be taken to get a head start on reducing the incline and building resilience to shocks.

Carbon budgeting provides a mechanism to cope with a world that currently places little importance on effective international action, and a future one that could require countries to quickly take on serious commitments. At the point the world decides to get serious, New Zealand is not going to escape paying a proportionate share of the costs and it needs a mechanism that can plan with this in mind.

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<td>Establish carbon budgeting process: 5 year budgets and a Climate Commission</td>
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<td>2. Performance Requirements</td>
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<td>Tune capabilities of price and non-price tools to enable delivery of targets</td>
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¹ In September 2012, the Sustainability Council proposed that New Zealand adopt a carbon budgeting process after a detailed review of official projections and carbon accounting policies. The Treasury projections are detailed in that report: http://www.sustainabilitynz.org/wp-content/uploads/2013/02/TheCarbonBudgetDeficit.pdf
The Carbon Budget Deficit
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Researched by

Simon Terry

September 2012

Part 1

Sustainability Council, PO Box 24304, Wellington, www.sustainabilitynz.org
Tel: +64-4-9133-655, Email: council@sustainabilitynz.org

Disclaimer: While every effort has been made to ensure the accuracy of information in this report, no liability is accepted for errors of fact or opinion, or for any loss or damage resulting from reliance on, or the use of, the information it contains.
Overview

A carbon budget is essential to planning for serious emission reductions. It details the expected carbon flows and associated financial commitments for a country.

New Zealand has emissions reduction targets but no plan for how to meet them. Nor does it have detailed carbon accounts beyond the end of this year, and so no official statement of the future cost of facing up to the carbon challenge. The emissions trading scheme (ETS) and a snatch of minor policies do not amount to a plan or a carbon budget. They are simply tools.

At present, the ETS is used mainly to manage the financial risks to the government arising from forestry activities. The harvesting of trees is fully priced, while its impact on most other parties is limited through varied start dates and precise targeting of rebates, compensation and gifts. The ETS could be tuned to deliver meaningful emissions reductions, but that has not been the focus or effect to date. The ETS will reduce gross emissions by less than 1% during its first five years, and these are projected to keep rising out to at least 2050.

The ETS Review of 2011 was an opportunity to target specific levels of domestic emission reductions but it recommended essentially short-term palliatives. The Review did however lead the Treasury to develop a proto carbon budget, but it refuses to release more than the high level results of that exercise. The sector-level estimates needed to evaluate assumptions and understand options have been suppressed.

The External Carbon Budget Deficit

What the high level results nonetheless reveal is the extent to which New Zealand will miss its emissions targets under current climate policy and how much that could cost.

New Zealand has committed to three emissions targets - for the period from 2008 to 2012, the year 2020, and the year 2050. By drawing straight lines between these targets, the Treasury sets a carbon budget for each year and then compares these limits with New Zealand’s projected emissions to show the excess.

During the period from 2013 to 2050, the Treasury projects that under current policy settings, excess emissions will total 1,131 megatonnes of carbon dioxide equivalent (Mt of carbon). That is over a billion tonnes of carbon, or about 15 times that released last year in New Zealand. Net emissions peak during the 2020s but are still 142% over target by 2050 – and these results are consistent with partial updates since undertaken.

The current international climate treaty, the Kyoto Protocol, allows countries that overshoot their target to purchase offsetting carbon credits instead. So the Treasury’s proto carbon budget presumes that New Zealand will obtain credits from overseas to make up for excess emissions. Even assuming that the required volume of credits with environmental integrity could be sourced, reliance on these would be costly.
At the single low price the government uses to analyse climate policy options, $25/tonne of carbon, this external carbon budget deficit has a value of $28 billion dollars. At the prices used by the Committee on Climate Change to set UK carbon budgets, New Zealand would be paying on average over $200/t to import the required credits. As the targets New Zealand has nominated are weak compared to what the intergovernmental science panel recommends, the bill would be higher still if targets are tightened.

**ETS: A Tax that Has Not Even Paid for Itself**

To balance the external carbon deficit, the ETS legislation is currently set so that the scheme would ultimately raise enough revenue for the government to purchase the required volume of carbon credits. This involves annual ETS revenues rising quite soon to over four times the current level – charges that would total $2 billion a year at a carbon price of $25/t.

So far it has been a very different picture. The latest official figures estimate that ETS expenses will be more than double the revenue the scheme brings in during the first five years. A little under half those expenses are payments for forests that are absorbing carbon. The rest is various slabs of corporate welfare and compensation payments that have eaten out all the ETS income and more.

Overall, official figures show the government’s carbon accounts in deficit by 51 Mt for 2008 to 2012 – the period of New Zealand’s current commitment under the Kyoto Protocol. This is the total of forecasts for the ETS accounts and Kyoto accounts over that time. The value of this carbon budget deficit to the taxpayer depends on the carbon price assumed: it is $1.3 billion at the government’s $25/t price, but could be much higher depending on carbon prices at the time it is paid off. It is also before a contingent liability of 64 Mt associated with forest harvesting in the 2020s.

The real significance of the changes proposed to the ETS legislation in July 2012 is that instead of allowing the scheme to bring in enough revenue to pay off the existing deficit and provision for bigger emissions overshoots ahead, ETS income is frozen at today’s minimal levels. Such changes would not only abandon a pre-election promise that they would be fiscally neutral, they would abandon carbon fiscal responsibility. This is in sharp contrast to the government’s emphasis on bringing the nation’s financial budget back from deficit.

In carbon accounting terms, the ETS would convert from a scheme scheduled to collect serious amounts of revenue after an initial transition period, into one that would perpetuate the transitional arrangements indefinitely and fail to properly provision for future carbon costs. Future taxpayers would have to make up for the bills that today’s emitters are not paying. The ETS is becoming the embodiment, and apparent legitimisation, of a process of transferring climate debt and risk to our children.

**Excess Emissions Temporarily Masked – at High Risk**

Excess emissions are not manifesting as large bills to New Zealand at present because the government is filling the gap with somewhat temporary credits from crop forests - rather than from permanent forests, or purchasing durable credits of integrity.
overseas. These credits are different because owners of the crop forests generating those credits generally intend to cut them down in the 2020s. When the trees are felled, the credits need to be paid back and that becomes a liability on the government’s accounts.

The government is however seeking to pass most of the huge 2020s harvesting liability to the owners of forests that are generating international level credits for the government. Its cunning scheme involves offering forest owners local ETS credits (rather than the international level ones). If foresters take them, and also sell them, then at harvest time it is the forest owners (rather than the government) that will need to find the money to buy replacement carbon credits.

Yet by the end of 2011, just 16% of the contingent liability the government had incurred to that point through the use of forestry credits had actually been passed to forest owners. Recent changes to international accounting rules have also made forest owners more wary of accepting ETS credits in future, and cashing in existing ones.

So the government could easily end up retaining much of the liability for harvesting the trees. The ETS is not however bringing in nearly enough revenue to provision for this, and the proposed changes abandon the rise in charges that would do so. The terms of future climate treaties remain uncertain, but it is a stretch to believe that New Zealand would not have to repay credits it had already used when trees are felled that have generated those credits.

It is possible that a significant number of forest owners will in the end decide to become permanent foresters and choose to leave the trees standing. But the government cannot accurately predict the balance between carbon prices and timber prices in the 2020s, so it has no reasonable basis for not provisioning for the wall of wood being felled, and is otherwise simply gambling.

It is the scale of the gamble that is key. Carbon prices have been low in recent times (from $20 to as low as $5/t) and are expected to be costly in the 2020s (rising from $50/t to $140/t, the UK Committee on Climate Change assumes). The game the government is playing involves using an apparently no interest loan when this scheme carries financial risks that could make it the equivalent of a loan with an interest rate of many hundreds of percent. The stage is set for the taxpayer suddenly facing a major financial haemorrhage in the 2020s. And it is inadequate accounting conventions that fail to make this clear.
Failing to Plan is Planning to Fail

A carbon budget is essential to planning for serious emission reductions. It details the expected carbon flows for a country and how these can be reduced by practical actions. That information is key to setting limits on total annual emissions and developing realistic action plans.

Carbon budgets also detail who pays the cost of the transition to a low carbon economy. They define what share of the financial responsibility sits with each sector or will be passed to future generations by default. Without this, a plan has no substance.

New Zealand has emissions reduction targets but no plan for how to meet them, and no detailed carbon accounts beyond the end of this year.

The three emissions targets are for: the period from 2008 to 2012, the year 2020, and the year 2050. They arise from New Zealand making policy commitments about what share of the global effort it will shoulder, and what is judged an appropriate emissions pathway for the country in its own right.

The emissions trading scheme (ETS) and a snatch of minor policies do not amount to a plan or a carbon budget. They are simply tools. The government states that it does not even intend to create a low carbon development plan when this is all but mandatory under a UN agreement New Zealand signed in 2010.

What carbon limits will be imposed under future international agreements remains uncertain, but this is bounded by the reality that the conservative intergovernmental science recommends considerably stricter emission limits than the targets for 2020 and 2050 that New Zealand has set for itself. So there is no future world in which New Zealand can expect carbon budgets that are more generous and at the same time do its “fair share” of the global effort required for safe atmospheric conditions – the promise New Zealand implies it will deliver on.

Current accounting conventions mean that only a small portion of the expected future cost of adjusting to a fair-shares carbon budget is registered in the nation’s financial statements. This accounting treatment disconnects the country’s carbon position from its future financial position. It masks major carbon subsidies the current generation is enjoying and makes it far easier to transfer carbon debt to a future generation. The prominence and priority given by the government to bringing the nation’s financial budget back from deficit contrasts sharply with its approach to the nation’s carbon budget.
It is possible the world will not act seriously in the next decade such that there is no international price to pay in that period if targets are missed. However, at best such delay just translates into bigger financial costs later, according to the International Energy Agency (IEA). More importantly, a delay in seriously cutting emissions raises the risk that climatic effects will be triggered that will begin to undermine productive capacity before the needed investments are in place. Given the certainty of serious costs of some form, if an accounting system is failing to even indicate the potential magnitude of such future costs, then it is not just an unreliable guide, it is dangerously misleading.

The IEA has warned that the world has just five years to substantially change investment spending if it is to hold the temperature rise to below the limit specified in international agreements (2 degree Celsius), while stating that “Under current policy we are looking at a potential warming of six degrees”. Leading climate scientist James Hansen states that the atmosphere’s capacity to safely absorb additional greenhouse gases has already been exceeded, such that any additional carbon is over budget. Either way, radically reducing emissions should be a top priority even for cash-strapped governments. Nobel prize winning economist Paul Krugman, puts the case for this in the following terms:

If the consensus of the economic experts is grim, the consensus of the climate experts is utterly terrifying. At this point, the central forecast of leading climate models — not the worst-case scenario but the most likely outcome — is utter catastrophe […]. How to head off that catastrophe should be the dominant policy issue of our time.

No matter how long the delay until real action commences, the temperature will only be lowered long term by cutting carbon going up and bringing more carbon down. Too much carbon will reside in the atmosphere for too long to wait and hope: it is just a question of how much New Zealand pays.

Slow progress is being made in developing international accounting standards for carbon. While it is important that those processes continue, the urgency of the climate challenge demands that nations meanwhile produce carbon budgets in parallel to financial budgets and drive action from the former. Only in this way can New Zealand be assured of getting a real measure of the scale of the problem – one the government would then have to consider in quite a different way when setting spending priorities instead of mightily fudging the issue. At the same time, businesses and other organisations will gain the ability to properly track government actions and contribute to sector plans in response.

If the government is serious about delivering its “fair share” and putting a carbon budget in place, good examples of how to achieve this are close at hand.
Carbon Budgeting in Action

In the wake of the failure to produce a binding global climate deal at Copenhagen, there has been growing recognition of the role that “bottom up” action must play. What had already been underway at all levels – from municipalities to regions – gained new impetus and political focus in those nations that saw a need to act decisively, regardless of whether others had yet reached that view.

Norway
At the nation state level, Norway has been an early leader. Six months after Copenhagen, its government had produced a 300 page plan for how to make the country carbon neutral by 2030. Norway plans for “about two-thirds” of the nation’s total emission reductions to be achieved within its borders, with the remainder “offset by emission reductions elsewhere”. In other words, Norway plans to fully pay to cut either its own emissions or someone else’s so that it has no net emissions.

With a 500 million Euro budget, Norway’s finance ministry is poised to contract for the third not saved domestically but it is the action at home that is the impressive part of the plan. The government systematically surveyed 160 projects capable of reducing emissions, assessed their cost, and then selected projects that together would meet the target. The biggest savings will come from the industry and petroleum sector but savings in energy efficient buildings and green transport solutions are also significant.

Overall, the government estimates that it can cut emissions within Norway to 20% below 1990 levels by 2020 – a reduction of 12 Mt on the emissions otherwise projected. Delivering this will be more costly for Norway than most other nations as its electricity is derived mainly from hydro generation and it has already exploited many opportunities for emissions reduction. All up, it will cost NOK 1,100/tonne (or NZ$240/t) for the last and most expensive tonne saved, with an average cost of a bit over $100/tonne for the whole programme. That figure is many times the current price for offset credits but Norway’s economic assessment of the programme takes a long view and $100/t is certainly well within the range of carbon prices expected to prevail when serious global emissions reductions are being chased.

Norway has financial flexibility to pursue even relatively high cost savings due to the surpluses available from oil exports and it sees itself as getting ahead on climate action while at the same time boosting its self-sufficiency in preparation for when the oil income runs out.
Norway is however not the only country to target carbon neutrality in the near future. The Maldives have pledged to get there by 2019 and Costa Rica by 2021 (while Bhutan claims it is effectively there already and Iceland believes it is very close now). Both the Maldives and Costa Rica have developed strategy documents and while detailed plans are still to emerge, the governments are busy building country brands around the goals – though delivery will clearly be reliant on foreign investment (offsets or otherwise) for a good part of these.\(^18\)

**United Kingdom**

For most nations, the practical way to manage a politically demanding transition to a low carbon economy will be to set a series of carbon budgets over a longer period and cast those plans into law.

The UK is the role model for this process. Its Climate Change Act provides a mechanism for setting a series of carbon budgets, each of five year duration. These must be set within the parameters of achieving at least a 34% reduction in emissions by 2020 and at least an 80% reduction by 2050, relative to 1990 levels. The concept the UK government is working to is that:

> By setting the trajectory to our 2020 and 2050 targets through carbon budgets, we can provide a clear, credible, long-term framework for the move to a low-carbon UK economy, and give businesses and individuals the direction and certainty they need to play their part.\(^9\)

The UK starts the process with the advantage that it has naturally replaced a lot of coal-fired electricity with plant driven by North Sea gas. This has been a contributor to the UK already being some 24% below 1990 levels (574 Mt emitted in 2011) but it is surprising how much has also come out of other sectors and the “offshoring” of manufacturing.\(^20\) Overall, the UK government judges that it will “easily exceed” the minus 34% target for 2020 via the existing policies in place. Thus the first three carbon budgets were ratified with relative ease in May 2009 and provide for the following levels: 2008-2012 (3,018 Mt), 2013-2017 (2,782 Mt) and 2018-2022 (2,544 Mt).\(^21\) The graph below projects possible pathways for the CO2 portions of budgets.\(^22\)

### Possible UK Emissions Trajectory (for CO2 Emissions Only)

![Graph showing possible UK emissions trajectory](source.png)

**Source:** Committee on Climate Change, *The Fourth Carbon Budget*, December 2010.
It was the fourth budget for the next period that presented more of a test. In May 2011 the government accepted commitments that would lock in a 50% reduction on 1990 levels by 2025 (1,950 Mt for the period 2023-2027). While it was the minimum the advisory committee (the Committee on Climate Change) recommended in order to stay on track to the 2050 target, it was highly significant that a government that had made deep financial cuts in many areas nonetheless accepted the need to keep pursuing a much stricter target 40 years away.

Although most of the implementation cost (put at “less than 1% of UK GDP in 2025”) will fall outside the current government’s term of office, the scale of spending taking place now on programmes that will not show a return for quite a number of years shows evidence of a long-term commitment. For example, a billion pounds is to be spent on four plants to demonstrate the feasibility of carbon capture and storage (CCS), and over 400 million pounds will be going to promote the uptake of ultra-low carbon vehicles. The plan for the next decade involves proving up such new technologies while the hard yards to implement them need to be made in the 2020s for the targets to be met.23

The Committee on Climate Change not only consists of leading minds on climate change, its budget documents start from an examination of the baseline science and explore response options in considerable depth. It is this rigor and the wide frame of reference - from the global level science to the careful detailing of assumptions and individual technology programmes - that makes the Committee’s fourth budget and its targets seem not just credible but plainly necessary, and a bargain at the price.

Meanwhile, in the Antipodes
It is more than sobering to return to the ETS Review of 2011 chaired by David Caygill - the closest such exercise New Zealand undertakes to calibrate its carbon policy. Nowhere in the Review’s report is there a mention of the scientific findings that are the reason to have a climate policy, let alone how findings since the ETS was legislated for have revised downwards our understanding of what is a sustainable atmospheric carbon burden. There is not the vaguest acknowledgement that New Zealand has the option to independently chart a course consistent with the best science, and that its commitment to deliver a “fair share” outcome ultimately needs to be referenced to biophysical constraints the science describes. The framing of what to do is constructed from a meandering discussion of what other countries might do and unattributed submitter comments, culminating in recommendations that boil down to New Zealand softening its already weak ETS for the next few years.

Understanding a little of the past helps explain how the country arrived at such a position, as the following section explains.
3 Carbon Fudgeting

Masking the Deficit
Carbon accounting got off to a bad start in New Zealand. Within a year of Parliament ratifying the Kyoto Protocol in 2002, a key estimate underpinning official advice was shown to be seriously off the mark. The projection for agricultural emissions in the 1990 base year was badly wrong and the nation’s Kyoto target (returning the country to 1990 levels) was going to be much tougher to meet than had been assumed. The net result was that the credits New Zealand would get from the UN as its carbon budget for 2008 to 2012 had been overestimated by an alarming 18%.24

The Ministry for the Environment (MFE) reported the news to then Climate Change Minister Pete Hodgson in May 2003 with a recommendation that a press release be issued, but this never came.25 As far as we are aware, the new much tighter carbon budget and its significance remained unknown outside Government policy circles until the Sustainability Council reported it in March 2007.26

The huge change in the estimate was not evident publicly because the accounts for 2004 were anything but transparent on this point. Not only did New Zealand’s first set of carbon accounts fail to mention the carbon budget had suddenly shrunk, a big new category of emissions savings called “Policies to Reduce Emissions” had been inserted. That year it was claimed that these policies alone would cut the nation’s emissions by about 10% between 2008 and 2012 - and it was this claim of 39 Mt of savings that kept the accounts from going into deficit and so revealing the problem.27

Yet two years later, in 2006, the estimated value of those same polices had crashed to just 15% of their previous potential – and by 2007 they were all but worthless. It cannot have been just a matter of bad luck that MFE and Ministry of Economic Development estimates for every single policy had to be seriously downgraded or abandoned between 2002 and 2007. There had simply been a completely inadequate basis for ever including such poorly founded estimates in the first place.28

As these policies and other forms of polyfiller crumbled, attempts to hold the line were finally abandoned and the 2005 carbon accounts declared a deficit equal to a 10% overshoot of the Kyoto target. The role of the failed policies in previously masking the position was itself largely masked by a convenient switch in accounting convention that year – and officials pointing to other changes as the cause. The package of failed policies was however the biggest single cause of the turnaround in the accounts.
The political crisis was intense at this point as there was a deficit even counting the (somewhat temporary) forest credits. New Zealand had originally pledged internationally “that it would not seek to avoid meeting its commitments” to cut emissions by instead using the forestry credits to mop up the excess. That was before the big hole in the accounts was discovered back in 2002. Yet within a year of the discovery of how much tougher it would be to meet the target, the forest credits that were previously largely promised to forest owners were seized in full by the government - and even that was not filling the hole.

Understandably, the forestry industry was upset and so began the government’s ongoing dance with the sector to look for ways to still reward it for the carbon soaking activities the government wants to see continue, and yet set up mechanisms that preserve the government’s ability to vary the overall outcome down the track.

A combination of luck and action in the forestry sector brought the accounts for the nation (but not the taxpayer) back into the black by 2009. The luck arose from a new survey of the amount of forest eligible to earn carbon credits that boosted it by nearly 20% compared with previous estimates. Action emerged in the form of the government giving notice that an emissions tax on deforestation would be implemented from 2008. This sent projections for future harvesting plummeting (and so improved the nation’s carbon accounts).

When it came time to turn that proposed tax into law in 2007, the government of the day took the opportunity to build an ETS around it. The Treasury designed and then handed to MFE to manage, an ETS that is neither a carbon tax nor a cap and trade permit arrangement (as there is no cap). It is a mongrel economic instrument designed to allow the Crown to manage its forestry liabilities and still limit the financial impact on selected parties through varied start dates and precise targeting of rebates, compensation and gifts. This allows the ETS to be portrayed as a holistic climate initiative rather than a forestry response with an ambiguous fringe tacked on.

The ETS could certainly be tuned to deliver meaningful gross emissions reductions, but that has not been the focus or effect to date. The architecture is also not well suited to the challenges posed by “bottom up” activity that will be increasingly important in the next decade. When a serious carbon reducing mechanism is sought, the bones of the ETS will make it relatively easy to convert it to this and the fluency gained from operating in a carbon playpen will help with the adjustment. In the meantime, it is critical to distinguish between what the ETS could do in theory and what it is actually doing in practice.

**Hiding the Proto Carbon Budget**

The first review of the ETS required under its legislation should have been an opportunity to escape from obfuscation and the short-term focus the government’s carbon accounts take. The ETS Review of 2011 required long-term thinking and the Treasury built a spreadsheet model to integrate the relevant factors out to 2050. Yet only the highest level results from that modelling were provided in the review report. A bit more of the picture was made available through the Treasury’s presentation to the review panel but the detail was again absent.
Without the sector level detail, the reasonableness of the projections cannot be properly evaluated. Nor does it allow proper scrutiny of the fairness of the proposed taxes and spending under the ETS.

A request for the full results under the Official Information Act (OIA) brought little more detail. The Treasury essentially released only the totals the model summed, not the sector level estimates, such that in the results sheet:
- future agricultural emissions are a state secret;
- future deforestation rates are a state secret;
- even projected fossil fuel emissions are a state secret.
All were blanked out.35

To appreciate how backward such an approach is, consider the response were a government to present a financial budget and state: “Here is the estimated tax take for future years, and here is the total annual spending. But we are not going to tell you how much tax is coming from any particular sector, and we are certainly not going to tell you how tens of billions of dollars worth of subsidies and other payments are expected to be distributed. And no, we are not giving you the figures for the past four years either”. Yet that is the approach that was taken to the closest thing in the public domain to a full carbon budget.

Other official documents do offer partial disclosures and scenarios for some of the detail that makes up the totals released. However, what the Treasury’s set of accounts did is bring all the various elements into one document with a consistent set of assumptions. That is, a document that projects who actually pays carbon charges and who does not, and where cuts in emissions come and where they do not. That is the core of what a carbon budget needs to show.

The Treasury’s grounds for suppressing this detail centre on preventing other countries from being able to estimate the value of the forestry credits New Zealand could gain through Kyoto rule change under negotiation at the time.36 Yet New Zealand is party to an international treaty that requires decisions to be made “on the basis of equity” about what burden each nation should shoulder, and for New Zealand to seek to withhold information that revealed its position is contrary to the intent of that UN convention, if not its requirements.37 Such information would be needed to ensure a just allocation is achieved.

New Zealand is not the only country engaged in this sort of behaviour but that is not a satisfactory moral position, nor does it lead to a safe solution for this country if others similarly play as though the negotiations were a ‘zero sum game’. They are emphatically not a zero sum game in the way trade negotiations are: most or all parties will experience profound loss in the event of failure. It is a test of global cooperation in delivering an outcome that is both effective and just. Sources of emissions that are the size of New Zealand’s annual production need (collectively) to be eliminated in the relatively near future to achieve a safe greenhouse gas concentration in the atmosphere. Any suggestion that New Zealand’s actions make no difference is fallacious.

The public good grounds for disclosure of a full carbon budget are identical to that for financial transparency. Disclosure requirements for the financial budget are set out in
the Public Finance Act and this includes the obligation to update the nation’s financial accounts about a month before an election. The Sustainability Council requested the Treasury model when the ETS Review report was published in September 2011 and the highly redacted version of this proto carbon budget was delivered late in the afternoon the day before the general election of 26 November. This arrival time meant there was no way the high level information it did reveal could have informed voters before polling day. That implies the Treasury was at least content for information that is a proxy for the nation’s carbon budget to come to the public after the election.

Despite repeated requests, the Treasury refuses to front, at any level, to discuss the issues arising from the proto carbon budget and hides behind a wall of redirections to other agencies and partial written responses. It prepared what it named “the Treasury ETS model”, and it wrote the draft text for the section of the ETS Review on the fiscal impacts of the scheme that incorporated this, but refuses to answer in any detail about material that was a key part of a public review conducted under statutory guidelines.

This is in contrast to the Environment Ministry that has responded fully to a significant number of specific questions, written and oral (albeit subject to increasing delay and oversight of ministerial staff). The ministry has also provided assistance with interpretation and background information. Other government agencies have similarly provided information when requested.

The Treasury’s suppression of sector level data is currently the subject of an Ombudsman’s investigation, as is its refusal to supply any element of the documents that relate to its decision to withhold that information.

What the high level results from the proto carbon budget nonetheless reveal is the extent to which New Zealand will miss its emissions targets under current climate policy and how much that could cost. By drawing straight lines between New Zealand’s three emissions targets, the Treasury sets a carbon budget for each year and then compares these limits with the nation’s projected emissions to show the excess. The results from this exercise, including updated data where required, are analysed in the following sections for each of the three target periods.
New Zealanders can be forgiven for thinking that the taxpayer is in good shape for the first period under the Kyoto Protocol. “NZ on target to meet its Kyoto commitments” ran the headline on the Climate Change Minister’s recent press release. That message has been heavily promoted from 2009 and while the external balance of carbon credits may indeed meet the country’s Kyoto commitments, the taxpayer is definitely not in good shape. This section unpacks the layers of carbon accounting surrounding that first period from 2008 to 2012.

Understanding how the government accounts for carbon and its financial derivatives involves understanding the three separate measures it uses:

- **National Position**: the extent to which targets are met by domestic emissions reductions or need to be paid for by purchasing credits from other countries;
- **ETS Position**: the balance of revenue versus expenditure under the ETS;
- **Contingent Liability**: payments potentially due, subject to future events.

The **Taxpayer Position** is the sum of the first two. Each of these is considered below, but first the reference point for them all – the emissions target for the First Period.

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**Projected Vital Statistics for the First Period**

**Period**: 2008 to 2012 – first commitment period under the Kyoto Protocol.

**Emissions Target**: A return to 1990 emission levels, on average, over the five year period (New Zealand’s commitment under the Kyoto Protocol).

**Emission Levels**:
- **Gross Emissions**: 18% above 1990 levels for period (56 Mt in excess of target).
- **Net Emissions**: 31% above 1990 levels for period.

**National Position**: 23 Mt in credit (under Kyoto ‘Gross/Net’ accounting rules).

**ETS Position**: 74 Mt in deficit.

**Taxpayer Position**: 51 Mt in deficit.

**Contingent Liability**: 64 Mt.

**BOTTOM LINES**
- External Carbon Budget is in credit by 23 Mt.
- Total Carbon Budget in deficit by 51 Mt – a cost of $1.3 billion at $25/t.
Emissions Target and the National Position

Under the Kyoto Protocol, New Zealand committed to return to 1990 emission levels, or pay others to make cuts that would make up the difference. New Zealand is currently projected to be 18% over its target – some 56 Mt in excess. That is the gross emissions overshoot, and the ETS has cut this by less than 1%, relative to business as usual. It has made just the smallest change on what would have been expected anyway. Gross emissions are shown as the brown line on the graph below.

The Kyoto treaty also recognises the value of carbon absorbed in forests and allows credits from this activity to be used to offset gross emissions. New Zealand is currently projected to earn 86 Mt of forest credits during the first period.

So for New Zealand as a country, the result is calculated as the sum of the gross emissions overshoot of 56 Mt and 7 Mt of other emission liabilities, minus the 86 Mt of forestry credits. This yields what is called a National Position of 23 Mt in surplus. This MFE figure updates that used by the Treasury.

The accompanying graph charts this overall result for the nation (red) against the target (blue). This shows that New Zealand as a nation is expected to be comfortably inside its Kyoto target.

It is important to note however that the red line represents what is known as the ‘Gross/Net’ result. This involves first taking a gross emissions figure from 1990 as the baseline. This is then compared to a figure for the 2008 to 2012 period that counts not only gross emissions but also the net amount of carbon sequestered in qualifying forests since 1989. This piece of accounting chicanery has been accepted into the Kyoto treaty but does not provide a true picture of New Zealand’s net emissions performance – as it does not compare net with net. If New Zealand’s net emissions in 1990 are compared to its projected net emissions for the Kyoto period, the nation is in excess by 31%.

So New Zealand is in overshoot by 18% on a gross emissions basis and by 31% on a net emissions basis. It is only the Gross/Net accounting approach that prevents the National Position from being in deficit during the first period.

ETS Position

The National Position is however just the first part of the picture. Next is the flow of income and expenses associated with the ETS – the ETS Position. All issuances of the local carbon currency, the NZU, are registered as costs to the Crown accounts and all NZUs surrendered are credits, according to the Auditor General’s advice.
there are many more NZUs issued during the first period than emission taxes collected, the ETS results in a major loss to the taxpayer. The extent of that loss has long been difficult to read from the Budget because of the way in which ETS revenue and expenses are set out and the confounding conversions required. Green MP Kennedy Graham for one recently told Parliament that: “The Budget seeks to hide the line items pertaining to climate change, splitting the Emissions Trading Scheme into various line items that would challenge any corporate investigator”.

However, the Treasury made estimates that explain the position clearly in a document prepared in anticipation of the ETS Review and obtained by the Sustainability Council under the OIA. That document used May 2010 figures and shows that while emissions revenue will be earned on 47 Mt, some 87 Mt worth of NZUs will have been issued. Many of these are simply given away as various forms of subsidy and compensation to major industrials – with the balance rewarding foresters for absorbing carbon. The overall result was a thumping 40 Mt deficit. This is combined with the National Position in the following graphic from that Treasury document.

The document is an appendix to the Treasury’s presentation to the ETS Review panel (though it was not actually shown to the panel members). That appendix also contains a sector breakdown of ETS income and spending, but the Treasury refused under the OIA to release even this essentially historic data – just as it refused to release sector level detail on future emissions and NZUs being issued.

Both the National Position and the ETS Position have since been updated. The National Position has improved from the 11 Mt surplus shown above to a 23 Mt surplus - as more forest credits are now expected to be available. However, the deficit on the ETS Position is now nearly double that projected two years ago. It has grown from -40 Mt to -74 Mt.

Estimates from the May 2012 Budget show that while ETS revenue for the period remains at roughly the same level of 47 Mt, instead of 87 Mt of NZUs being issued, this has jumped to about 121 Mt. That represents an extra 34 million NZUs being issued at no charge. As the surrender of those additional NZUs will come some years from now when carbon prices will be different, the real cost of that extra amount
issued is uncertain but at the low carbon price the government uses of $25/t, it would be $800 million.
This posed a puzzle as there had been no change of legislation between the period of the two estimates, and yet somehow hundreds of millions of dollars extra was being given away without the Budget documentation revealing where or why, and the Treasury had flatly refused access to the sector data for this period even though it was largely historic.

Fortunately, MFE took a different view on what it is necessary to keep confidential and has provided the data needed to explain what is going on. The table below provides the first glimpse at the official carbon budget down to sector level. It needs to be stressed however that it is not an accurate record of past payments. It is a modelling scenario that has yet to be updated – the best we can get despite a lot of effort. Its virtue is that it provides a complete breakdown for the period and its total revenue and total spending estimates are in line with those in the current Budget.

In large part the explanation for the much higher expenditure is a change in accounting practice. Owners of forests planted before 1990 are set to be gifted about 51 Mt of NZUs as compensation for the deforestation charges they would face were they to convert their land to non-forestry uses. That compensation is to be paid in two tranches, one paid last year of about 27 Mt (it is still being finalised and estimates vary) and another some time after 2012. What the updated estimates show is that the cost of the second payment has nonetheless been recorded as a charge on the First Period and this accounts for most of the change from the 2010 figures.

The estimated compensation has however also gone up considerably: from 43.8 Mt less than a year ago to 51 Mt or more – at least a 16% increase.

<table>
<thead>
<tr>
<th>Revenue</th>
<th>2008</th>
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<th>2011</th>
<th>2012</th>
<th>Totals</th>
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<td>11.1</td>
<td>15.3</td>
<td>65.2</td>
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</tbody>
</table>

| Net ETS position (millions of units) | -12.3 | -12.2 | -5.9 | -44.8 | 1.8  | -73.3 |

Sustainability Council 13
Source: MFE data.

The surprisingly good news the table shows is that the government has managed to hold the gifting of NZUs to major industrials below what the legislation could have allowed. Under the original 2008 ETS legislation, around 50 Mt of NZUs were to be gifted in the first period — a huge dollop of corporate welfare. Yet this carbon budget for the first period shows just 8.8 to 12.8 Mt of gifting (depending on the number of NZUs gifted under negotiated greenhouse gas agreements — information about which has been withheld). Even allowing for the fact that the 2009 revised legislation delayed the start date six months and effectively cut obligations in half, the amount being paid out is less than could have been expected.

To get some idea of how well the government has done in jawboning the corporate welfare down to this level, initial Treasury estimates of just the power price compensation the major industrials were to receive (for price increases resulting from the ETS) were the equivalent of a 10 Mt payout under the current scheme. The total number of NZUs gifted to industrials — covering subsidies based on both electricity use and emission levels - is now probably only a little more than 10 Mt.

Despite these efforts, expenses will be two and a half times the revenue the scheme will bring in (47 Mt revenue vs 121 Mt expenses). A little under half those expenses are projected to be for forests that are absorbing carbon, but even excluding these, the income of 47 Mt compares to expenses of 66 Mt — a 19 Mt deficit. The various slabs of corporate welfare and compensation have simply eaten out all the ETS income and more. In other words, the ETS is a tax that will not even pay for itself during its first five years. The overall picture remains a huge deficit of 74 Mt. Under the current legislation, the ETS will not break even on the Crown accounts until 2016 — and much later under proposed changes (see Section 5).

**Taxpayer Position**

For the purpose of the government’s financial accounts, the Taxpayer Position is the sum of the National Position (23 Mt in surplus) and the ETS Position (74 Mt in deficit), and so a 51 Mt deficit overall for the First Period, as further detailed below.

<table>
<thead>
<tr>
<th>National, ETS and Taxpayer Positions - 2008 to 2012 (Mt)</th>
<th>2012 (Mt)</th>
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<th>2010 (Mt)</th>
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</tr>
<tr>
<td>Excess Emissions</td>
<td>-56</td>
<td>-54</td>
<td>-62</td>
</tr>
<tr>
<td>Other Emissions Liabilities</td>
<td>-7</td>
<td>-7</td>
<td>-7</td>
</tr>
<tr>
<td>Total Emissions Liability</td>
<td>-63</td>
<td>-61</td>
<td>-69</td>
</tr>
<tr>
<td>Forest Credits (net)</td>
<td>86</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>NATIONAL POSITION</td>
<td>23</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>ETS Income</td>
<td>47</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>ETS Expenses</td>
<td>-121</td>
<td>-108</td>
<td>-87</td>
</tr>
<tr>
<td>ETS POSITION</td>
<td>-74</td>
<td>-58</td>
<td>-40</td>
</tr>
</tbody>
</table>

*Estimates made in each of the three years*
The government values its positions at the carbon price of the day and prices are currently very low: a figure of $10.60 was used in the May 2012 Budget. This is conventional practice, but as more credits have been issued than can be surrendered to the government in the near future, the current deficit will be paid off at future prices. So it is analytically appropriate to use the government’s forecast future price when assessing its value.

The government has until recently assumed a price of $50/t when modelling carbon flows after 2012, but at the $25/t carbon price it currently assumes, the carbon budget deficit for the First Period is $1.3 billion. The following shows the value of the deficit in billions of dollars at a range of carbon prices.

<table>
<thead>
<tr>
<th>Carbon Price ($)</th>
<th>10.6</th>
<th>25</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value ($billion)</td>
<td>-0.5</td>
<td>-1.3</td>
<td>-2.6</td>
<td>-5.1</td>
<td>-7.6</td>
</tr>
</tbody>
</table>

**Contingent Liability**

The negative ETS position is far from the end of the liabilities however. The National Position is in surplus only because of a one-off tree planting boom in the 1990s that is resulting in high rates of carbon absorption by forests today, but will be followed by high levels of deforestation in the 2020s when the ‘wall of wood’ is harvested. At that point, the credits earned for absorbing carbon will need to be repaid to cover the deforestation. As the Treasury emphasises: “for every tonne of carbon absorbed by forestry there is an associated future liability. In the long term the forestry sector is essentially a zero sum game.”

At first the government’s accounts failed to recognise this future deforestation cost. For six years after having ratified the Kyoto Protocol, no liability was registered in the accounts. However, the Budget presented in May 2010 finally introduced a contingent liability of 86.1 Mt (there valued at $1.7 billion).

This future deforestation cost is listed only as a contingent liability (and not a cost that needs to be provided for) because under the accounting rule in force, it is judged not to meet the following criteria:
- That it is probable that an outflow of resources will be required to settle the obligation; and
- That a reliable estimate can be made of the obligation.

In this case, MFE does not believe there is sufficient certainty that the trees will ultimately be harvested and that an international agreement will be in place to impose a charge on New Zealand for such harvesting. The specific test is whether “it is more likely than not” that the future conditions required to trigger the obligation will come to pass.
In line with this categorisation of future deforestation costs, the New Zealand government does not consider these to be a component of the Taxpayer Position and MFE states:

> The Crown’s position reflects the combination of the Crown’s Kyoto obligations and transactions under the Emissions Trading Scheme. It doesn’t reflect the contingent liability.\(^6^8\)

Although the treatment of future deforestation costs may be in accordance with the accounting rules of the day, complex questions emerge in the case of how New Zealand’s crop forests are to be accounted for, and these are tied up with estimates of the contingent liability.

The scale of the contingent liability for the first period has shifted considerably since first declared in 2010 (see table below). As more qualifying forest has been discovered, that boosts the availability of carbon credits and the liability goes up. However, when the government issues credits to owners of forests planted after 1989, it in turn writes down the contingent liability (while writing up a debt on the ETS ledger in parallel).

<table>
<thead>
<tr>
<th>Year of Estimate</th>
<th>2012</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Credits (gross)</td>
<td>92</td>
<td>89</td>
<td>86</td>
</tr>
<tr>
<td>Issue of NZUs to Post 1989 Forest Owners</td>
<td>28</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Contingent Liability</td>
<td>64</td>
<td>76</td>
<td>86</td>
</tr>
</tbody>
</table>

Source: NZ Budget Statements for each of the years listed.

**ETS Passes First Period Bill to Future Taxpayers**

The ETS is not only failing to meaningfully reduce gross emissions, it will pass a hefty bill from the First Period to future taxpayers. As the government’s accounts currently stand, there is a 51 Mt overall deficit from the combination of the Kyoto account and the ETS account, equivalent to $1.3 billion at $25/t. And that is a generous view. In particular, it excludes the associated contingent liability – officially estimated at 64 Mt but not on the government’s books and equivalent to a further $1.6 billion.

Having the contingent liability off the books also means that the accounting is asymmetric with respect to forestry credits. At the international level, all forest credits generated by New Zealand are on the books and so form a part of the National Position. Under the ETS however, payments are only made for forests generating those credits when their owners have joined the ETS (and only half the qualifying forest area is so far signed up).

Such an approach meets the government’s own accounting rules, but provides a “Crown-centric” view of the landscape, and not what a full carbon budget would show.\(^6^9\) So the government’s choice of how it sets up the accounts not only makes it
difficult to see the carbon for the trees, it influences the outcome. It also allows the
government to employ an unreliable accounting standard for determining when
contingent liabilities are retired and this has knock on implications.

So “NZ on target to meet its Kyoto commitments” is one part of the picture, but the
overall taxpayer position is anything but in good shape.
Emissions Reduction Target
New Zealand is one of only two developed country parties to the Kyoto Protocol that have not put forward an unconditional emissions target for 2020. The target New Zealand did provide in the lead up to the Copenhagen summit and the essence of the conditions is as follows:

New Zealand is prepared to take on a responsibility target for greenhouse gas emissions reductions of between 10 per cent and 20 per cent below 1990 levels by 2020, if there is a comprehensive global agreement, and other New Zealand conditions are met.

Projected Vital Statistics for the Second Period

Second Period: 2013 to 2020 - second commitment period.

Emissions Target: A reduction of 10% to 20% below 1990 levels (on a Gross/Net basis). Interpreted as 1990 levels minus 15% for analysis.

Performance: 43 Mt of emissions in excess of target over the period.

Emission Levels:
- Gross Emissions: 46% above target in year 2020 (1990 levels minus 15%).

National Position: 43 Mt in deficit (on Gross/Net basis).

ETS Position:
- Under the current legislation: a surplus of about 140 Mt.
- Under proposed changes to the legislation: a deficit.

Taxpayer Position:
- Under the current legislation: a surplus of about 97 Mt.
- Under proposed changes to the legislation: 43 Mt or more in deficit.

Contingent Liability: No contingent liability registered for the period.

BOTTOM LINES
Cumulative total Taxpayer Position (from 2008 to 2020)
- In surplus by 46 Mt under current legislation.
- In deficit by 94 Mt under proposed changes to legislation (transition provisions continue until 2020) - an additional cost to the taxpayer of $2.3 billion at $25/t.
New Zealand is still assessing what target it will take on. The highly conditional pledge allows it to make a lesser commitment if New Zealand believes that new forestry rules and/or the features of “a comprehensive global agreement” that it seeks are not present.\(^74\)

A further uncertainty is whether New Zealand will take its target as part of a second commitment period under the Kyoto Protocol or whether it will be essentially a voluntary pledge – something negotiators left open at the Durban summit of 2011.

In July 2012, the government nonetheless affirmed that “In the interim, our 2020 conditional target range of 10 to 20% below our 1990 gross emission levels will remain”.\(^75\) When conducting analysis on the second period, officials take the midpoint of the target range – minus 15% - as the reference point and we similarly adopt this.

New Zealand’s expected performance relative to this –15% target is clear cut in gross emission terms: it will overshoot by 46% according to New Zealand’s latest report to the UN for this period.\(^76\) This gross emissions figure is again the most significant measure. The net figure depends a great deal on forestry assumptions and under projections based on old forestry rules, New Zealand was expected to be 50% over the target on the figures supplied to the UN, 19% in excess according to the Treasury model in 2011, and 24% on an update.\(^77\)

The new forestry rules for the second period (provisionally agreed in 2011) will alter this somewhat but MPI officials are currently unable to provide guidance as to whether their overall effect is expected to be positive or negative.\(^78\) The results also depend on assumptions about deforestation during this period.

**National Position**

Deriving a national position requires a formula for translating a target for a single year (2020) into an emissions allowance for the full period from 2013 to 2020. The Treasury assumes a linear path from the Kyoto target level to the 2020 year target. It projected in 2011 that the second period would result in New Zealand being in net deficit for every year of the period and a total of 43 Mt out of pocket by the end of the period (under old forestry rules).

An updated projection puts the loss at a higher level still once adjusted (62 Mt) but for reasons of consistency the lower Treasury figure is adopted here and using the Treasury data throughout leads to very similar results.\(^79\) As the

![Target and Projected Emissions - 2013 to 2020](image_url)
graph above shows, from 2013, New Zealand’s emissions become progressively greater than the assumed carbon allowance from the UN.

Much depends however on the formula applied to translate the target into an allowance. A UN study into the question quantified two potential options, each with major winners and major losers, but both delivering similar outcomes globally if applied to all countries. One option assumes a starting point consistent with a country’s Kyoto target.

New Zealand would prefer to use the other option of starting from the country’s actual emissions in 2007 - as this would vastly increase its emissions allowance. Extraordinarily, New Zealand has advocated that a country can select whatever formula it wishes to use.

Developed country pledges for the year 2020 are already alarmingly weak, relative to IPCC advice that this group reduce emissions 25% to 40% below 1990 levels if it seeks to hold the global temperature rise below 2 degrees C. The pledges on average amount to a cut of just 12% to 18% before the impact of loopholes in the accounting rules. A UN Environment Programme report shows those loopholes would allow countries to on average make no change to their expected emissions path. In other words, the current pledges amount to business as usual for developed countries as a group.

New Zealand’s proposal to allow each country to pick its preferred formula would weaken the outcome still further by allowing New Zealand to reduce its obligations at the expense of the atmosphere.

WWF-New Zealand estimates that were New Zealand to secure its preferred formula, it could expect to gain an additional 49 Mt of allowance from the UN – enough to more than wipe out the cumulative deficit the Treasury has projected. As WWF notes, the wider significance of this proposal is “the potential precedent that this sets for the allocation of ‘pollution credits’ in any post 2020 agreement”. If countries that fail to meet their targets in one period get a more generous allowance of credits in the next, then the incentive to keep to pledges is badly weakened.

At this stage, no decisions have been taken that would specify New Zealand’s commitment beyond the broad pledge it has offered. So we take the updated projection of the Treasury model – a National Position of minus 43 Mt over the period.

**ETS Position**

The government proposes to radically recast the ETS, and hence the ETS Position, under its announcement of 2 July 2012 and draft legislation introduced to Parliament in August - the Climate Change Response (Emissions Trading and Other Matters) Amendment Bill. The changes go far beyond those contemplated by the ETS Review and the election promises made by the National Party.

Under the current legislation, the Treasury model projected that the scheme will bring in a net 140 Mt worth of income between 2013 and 2020. This was the baseline position the Treasury presented to the ETS Review. (An updated estimate puts this at
161 Mt but again we use the original Treasury model estimate as it can now be seen that the difference in the National Positions and the ETS Positions - between the original and updated - cancel within 2 Mt.)

The Review then recommended extending the scheme’s “transitional” measures in ways that would amount to the loss of 24 Mt of income over the period. The waffle it presented as justification for this spending was the following:

In the Panel's view, this increase in fiscal cost is justified by the greater certainty that the gradual removal of the transition phase will achieve. … Removing the transition phase more gradually over a slightly longer timeframe will help to minimise the short-term impact of the ETS on the economy and particularly on the international competitiveness of New Zealand businesses. It will also provide time for new sectors, notably agriculture, to make a smoother transition into the ETS. In the longer term, the changes recommended will make for a more robust and durable response to the challenge of climate change.

That was followed two months later by the National Party’s 2011 election manifesto that committed the government to a similar but different softening of the ETS transition arrangements. The major additional changes were an extension of the $25 price cap out to at least 2015, and the potential to further delay the entry of livestock emissions into the ETS by three years to 2018. However, the manifesto committed to delivering these and other amendments to the legislation such that “our changes to the ETS will be fiscally neutral”.

During the consultation phase on the proposed changes, neither the total cost of the proposed changes was revealed, nor the value of individual components. The cabinet paper, regulatory impact statement, and issues document that accompanied the consultation were essentially number-free zones when it came to cost information. The papers were proactively released by the government – but not subject to OIA rules as no reasons for withholding the costs were provided in the Cabinet document. When the Sustainability Council made an OIA request for the cabinet paper’s appendix containing a summary of the cost estimates, the Associate Minister for Climate Change Issues responded that all the costs were being withheld on the basis that “… as final decisions on proposed changes to the ETS are still pending, releasing the [cost information] would undermine the ability of Ministers and officials to develop policy proposals”. A version of the cabinet paper containing the figures was released only after the decisions were announced.

The apparent reason for the secrecy became clearer after the government’s proposed changes to the ETS legislation were announced on 2 July 2012. While superficially the decisions followed the recommendations of the ETS Review and the National Party’s manifesto commitments, the overall outcome was very different for the carbon accounts. The manifesto had promised to deliver the ETS changes on a fiscally neutral basis, yet the decisions were anything but this. Rather than an extension of the ‘transition provisions’ for a set period (and so a fixed quantity of ETS income being sacrificed), the proposed changes would make the transition measures the ongoing law. So instead of simply tweaking the terms that would apply during a new three year transition period (following the first one), the government announced that it would remove altogether the dates that would mark an end to the transition arrangements.
The practical effect of setting no dates to end the carbon holiday is that the ETS becomes the Eternal Transition Scheme. It changes from something that provides a limited holiday period for polluters within a long-term plan, to something that presents no real incentives for change beyond the forestry sector until a government has the courage to make the case for meaningful emission charges. The default settings are completely reversed and carbon pricing is largely back to square one, other than for forestry.

In carbon accounting terms, the ETS would convert from a scheme scheduled to collect serious amounts of revenue after an initial transition period, into a scheme that will perpetuate the transition arrangements indefinitely. The proposed reforms amount to an abdication of carbon fiscal responsibility.

The government put the total cost of the package of changes at $328 million. This was based on the carbon price it regularly uses in its accounts – the current market price – and at the time that was a very low $6/tonne. At the $25/t price it uses when undertaking analysis to assess future liabilities arising from climate policy, the cost to taxpayers is $1.3 billion in lost revenue. 80% of the total additional cost of the changes arises from what the government describes as the “big ticket item”. This is the extension of the concession that allows polluters to pay just one emission unit for every two tonnes of carbon they release.

Yet these estimates are only for the first three and a half years after they would take effect in January 2013. A further review of the ETS has been signalled for 2015, but if the transitional measures are not abandoned by June 2016, the taxpayer will continue to sacrifice revenue for every additional year. As the government’s ETS accounts are constructed on the basis of what the legislation specifies, the full cost of this polluters’ banquet will be a loss of at least 140 Mt for the second period alone - based on estimates presented in the relevant Cabinet paper.96

The initial value of each of the main changes the government has proposed to legislate for is set out in the table below.97 In addition, the progressive phase out of the allocations of NZUs to major industrials and agriculture that would otherwise apply is proposed to been frozen, so there is a significant further loss of net income.

<table>
<thead>
<tr>
<th>Proposed Change</th>
<th>Carbon Cost (Mt/yr)</th>
<th>Cost each year at $25/t ($mill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension of 2 for 1 concession for fossil emissions</td>
<td>13 +</td>
<td>$333 +</td>
</tr>
<tr>
<td>Delay agriculture start date</td>
<td>4 +</td>
<td>$100 +</td>
</tr>
<tr>
<td>(up to $300 by 2030)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend price cap of $25</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Source: Interpolated from Cabinet paper of 2 July 2012.

In summary, during the second period, the ETS is expected to:

- Result in a surplus of about 140 Mt under the current legislation; and
- Result in a loss position under proposed changes to the legislation.
Taxpayer Position
The consolidated Taxpayer Position at the end of the Second Period is the sum of the National Position and ETS Position for that period, plus the deficit carried over from the first period (-51 Mt). The following sets out this consolidated position, or total carbon budget to date, under the two different legislative scenarios.

<table>
<thead>
<tr>
<th>Consolidated Taxpayer Position after Second Period (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Position</td>
</tr>
<tr>
<td>Existing Legislation</td>
</tr>
<tr>
<td>Proposed Legislation</td>
</tr>
</tbody>
</table>

The consolidated Taxpayer Position under the current legislation is a surplus of about 46 Mt. (Note that if the updated estimates of the National Position (-62 Mt) and the ETS Position (+161 Mt) are used instead, the taxpayer position under the current legislation is 48 Mt vs 46 Mt).

If the announced changes ran until just the end of 2015 when the ETS is next proposed to be reviewed, this would sacrifice about 50 Mt of income and result in a deficit of about 5 Mt at the end of the period.

Alternatively, if the legislation is changed and the new concessionary arrangements are not terminated before 2020, the consolidated Taxpayer Position will be a deficit greater than 94 Mt.\textsuperscript{98} That is a sacrifice by the taxpayer of over $2.3 billion at $25/t. The following shows its minimum value at a range of carbon prices.

<table>
<thead>
<tr>
<th>Value of Taxpayer Position at 2020 (-94 Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Price ($)</td>
</tr>
<tr>
<td>Value ($billion)</td>
</tr>
</tbody>
</table>

Contingent Liability
Unlike the First Period, the government’s accounts do not register any quantified contingent liability for the Second Period.

During this period, New Zealand’s forests will again be considerable net absorbers of carbon. The Treasury estimated that 180 Mt worth of forestry credits will be earned and used in both the first and second periods (and more have since been discovered).\textsuperscript{99} As 92 Mt of these are expected to arise in the First Period, that means about another 90 Mt worth of forestry credits will be accumulated during the second period.\textsuperscript{100}

However, rather than a contingent liability, for this period there is just the statement that: “Projections do not incorporate a quantitative estimate of any net emissions
liability that may eventuate from New Zealand’s obligations under future international climate change agreements.” The Treasury also states that: “we consider it appropriate that upon signing a new international agreement the Crown should recognise a contingent liability associated with these forestry credits”.

The government will be relying on these forestry credits to achieve a second period target, whether or not that is committed to internationally – and the government is increasingly saying that the commitment will mean much the same to it either way. Yet the responsibility for repayment of those credits - that rests with the government - is invisible on its accounts.

Even if a binding international commitment is not entered into for the second period, it seems a remote possibility that New Zealand will not at some later stage need to account for harvesting trees that it earned credits on in the past. By not even recognising a contingent liability in respect of credits used during the Second Period, the financial significance of this act is sidelined even further than the parallel liability arising from the First Period (64.3 Mt). Another 90 Mt worth of forestry credits could easily be worth $9 billion by the time they are due for repayment, as the Treasury has noted.
**Emissions Target**
Whatever description is applied to the performance before 2020, the decade following this is an undisguisable explosion of emissions. As the ‘wall of wood’ is harvested, emissions rise like a mountain on the graph when they need to be 32% below 1990 by the mid 2020s to be on track for government targets.

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**Projected Vital Statistics for the Third Period**

**Third Period**: 2021 to 2050.

**Emissions Target**: A reduction of 50% below 1990 levels (on a Gross/Net basis).

**Emission Levels**:
- *Gross Emissions*: No official estimate available.
- *Gross/Net Emissions*: 142% above target in 2050 (74 Mt).

**National Position**: 1,087 Mt in deficit (on Gross/Net basis).

**ETS Position**:
- Under the current legislation: a surplus of 929 Mt.
- Under proposed changes to the legislation: a large deficit, estimates unavailable.

**Taxpayer Position**:
- Under the current legislation: a deficit of 158 Mt.
- Under proposed changes to the legislation: a large deficit, estimates unavailable.

**Contingent Liability**: No contingent liability is registered for the period.

**BOTTOM LINES**
- External Carbon Budget is in deficit by 1,087 Mt - $54 billion at $50/t.
- 99% of the external deficit between 2008 and 2050 is projected to arise during the last three decades - from 2021.
- Total Carbon Budget position is highly dependent on future afforestation assumptions and these are not disclosed.
The Treasury’s projections are the most recent public data for the period from 2021 to 2050 (red line on the graph below). Updated projections using the same model are also shown on the graph (gold line). However this update shows emissions only to 2040 - versus the next target date of 2050.\textsuperscript{104} As the volume of emissions over the period from 2021 to 2040 is virtually the same under the two projections, the results from the original Treasury projection are used as these cover the full period.\textsuperscript{105} (The difference between the two projections mainly reflects different assumptions about when the wall of wood will be cut, with the Treasury model showing harvesting based on when the wood matures and the update factoring in assumed capacity constraints.)

The emission projections are set out relative to a line the Treasury has drawn to interpret and connect the government’s 2020 and 2050 targets (blue dashed). That 2050 target is very weak compared to IPCC recommendations (more on that below). Yet even in comparison to a weak target, New Zealand’s projected emissions race away from target levels after 2020 and never get close again. They rise to chart “Mount Carbon” and then fall rapidly, only to rise quite sharply again in the mid 2040s.

\begin{center}
\textbf{Emissions Relative to Targets}
\end{center}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{emissions_relative_to_targets.png}
\caption{Emissions Relative to Targets}
\end{figure}

**National Position**

Emissions targets are ultimately a commitment by New Zealand to take financial responsibility for reducing a certain volume of emissions - rather than having to eliminate them all at home. So the immediate implication of the huge overshoot projected for the period from 2020 to 2050 is that New Zealand would be enormously reliant on other countries to cut those emissions on its behalf.

For a host of reasons, it is preferable that New Zealand cuts emissions domestically. It rewards New Zealanders on the one hand, and does not take away lower cost options from poorer countries that are likely to need them later. (Oxfam recommends that governments achieve at least three quarters of their emission cuts locally.)

A less obvious reason is that far too many of the credits that are FCCC approved lack environmental integrity. The form of offset credit that is the most traded by volume is the Certified Emission Reduction (CER) and is issued under the FCCC’s clean development mechanism. More than half of all CER credits projected to be made available by 2012 arise from the destruction of hydrofluorocarbon-23 (HFC-23).106 However, concern over the extent to which the substance was being produced simply to destroy it fuelled moves to greatly tighten up on credits being issued for HFC-23 destruction.107 Ultimately, the EU and later New Zealand banned completely the use of credits from this activity.

Yet peer review studies have reported that a number of other categories of projects approved as offsets (eg new wind and hydro plants in China) also largely fail or give every appearance of failing to result in a change from business as usual emissions – the basis for issuing of these CER credits.108 US Embassy documents released by Wikileaks suggest that virtually all projects in India generating CERs would fail the test.109 Use of such credits still remain legal in New Zealand, as does the use of other dubious forms of offsetting.110

Even assuming that the required volume of credits with environmental integrity could be sourced in future through helping to set up the projects, reliance on these is going to be costly. The following table from the Treasury data details the excess emissions in megatonnes and billions of dollars for each period through to 2050, including those from 2008 for reference.111 Deficits are coloured red to assist interpretation.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions Relative to Target (Mt)</td>
<td>23</td>
<td>-43</td>
<td>-446</td>
<td>-310</td>
<td>-331</td>
<td>-1,108</td>
</tr>
<tr>
<td>Excess at $25/tonne ($bil)</td>
<td>0.5</td>
<td>-1</td>
<td>-11</td>
<td>-8</td>
<td>-8</td>
<td>-28</td>
</tr>
<tr>
<td>Excess at $50/tonne ($bil)</td>
<td>1</td>
<td>-2</td>
<td>-22</td>
<td>-16</td>
<td>-17</td>
<td>-56</td>
</tr>
<tr>
<td>Excess at $100/tonne ($bil)</td>
<td>2</td>
<td>-4</td>
<td>-44</td>
<td>-31</td>
<td>-33</td>
<td>-111</td>
</tr>
</tbody>
</table>
The flow of funds overseas will be strongest in the first of the three decades in this period when harvesting of the wall of wood peaks. The Treasury’s projections are based on modelling that assumes a carbon price of $50/t.\textsuperscript{112} Even at this comparatively low price estimate for the period, New Zealand is paying out $22 billion over the decade. Accordingly, the graph below shows that during the 2020s an average of more than $2 billion a year would need to be paid to overseas parties in order for New Zealand to meet the obligations its targets require.

The size of the external carbon budget deficit depends a great deal on the carbon price assumed. What the graph above makes clear is that the big exposure for New Zealand is in the period from 2020 to 2050 as this accounts for 99% of the external carbon deficit – and the earlier period from 2008 to 2019 only 1%. And the time the price is expected to begin rising significantly is just when New Zealand will be climbing the face of Mount Carbon.
The UK carbon budgeting process uses a rising carbon price as its reference scenario and its fourth budget assumes that by 2020 the price is the equivalent of $50/t, rising to $140/t by 2030, and that the price hits $400/t by 2050.\textsuperscript{113}

These projected prices take into account the general pattern of low prices post Copenhagen (if not the most recent very low prices) and assume low levels through much of the 2010s. The UK Committee on Climate Change warns however that the price projections will turn out to be underestimates if: global action is delayed, trading between countries does not develop to the extent envisaged, technology costs are higher than assumed, or fossil fuel prices are lower than projected.\textsuperscript{114}

During the period from 2013 to 2050, the Treasury projects an external budget deficit of 1,131 Mt under current policy settings – over a billion tonnes of carbon or about 15 times that released last year in New Zealand. At the single low price the government uses to analyse climate policy options into the future of $25/t, this deficit has a value of $28 billion dollars. At the prices used by the Committee, New Zealand could expect to pay many times that as the weighed average price is well over $200/t.\textsuperscript{115} The amounts begin to approach the $8 billion a year New Zealand currently spends on oil imports.

Such high carbon prices would however drive New Zealand’s emissions considerably below those projected in the model as it assumes a lower price ($50/t).\textsuperscript{116} In consequence, the volume of credits being purchased overseas would reduce considerably, reflecting the fact that New Zealand would then have many lower cost options for reducing emissions at home.\textsuperscript{117} But costs do not go away at that point - they just shift from payments being made overseas to payments being made locally.

The above price comparison shows how limited a study of the future is being presented when the price assumed by the government and the ETS Review never rises above $25/t – nearly a seventh the price the Committee on Climate Change has used on average over that period. Such studies present artificially low scenarios of the scale of emission reductions that would be undertaken at home if prices do rise significantly. Although New Zealand has a wealth of low cost options to begin the decarbonisation process, it is also a warning of the size of the external carbon bill that could arrive if there is no plan for change and action comes too late.

Another reason not to dismiss the huge numbers too quickly is New Zealand’s weak target for 2050 – of 50% below 1990 levels. A number of developed countries are targeting 80% below 1990 levels or better by this time.\textsuperscript{118} More importantly, by comparison to the conservative science, the target is very weak. The IPCC projected in 2007 that to have a roughly even chance (around 50%) of holding the temperature rise to 2 degrees Celsius, developed countries as a group would need to cut emissions by 80% to 95% below 1990 levels by 2050.\textsuperscript{119} Yet a 50% chance is far from appropriate if the 2 degree target is being prudently risk managed, so stricter cuts would be required for this. Further, since 2007, evidence has accumulated that the climate is more sensitive than previously thought – meaning deeper cuts again would be required to achieve a target temperature.\textsuperscript{120} So even if New Zealand were not to take a target as tight as nations whose emissions are more heavily fossil fuel dependent, a stricter target would still seem very possible.
In light of this, assuming that New Zealand can get away with doing no better than 50% below 1990 levels would not be a sound approach to financial and carbon planning. There is a good chance New Zealand will be effectively compelled through trade arrangements to take on a tougher target. The following table shows carbon budgets for stricter targets under a range of carbon prices. While the carbon price is the more sensitive variable in this example, the table illustrates how the external deficit can expand significantly under more stringent targets. Note that as the higher price scenarios are above the carbon price assumed in the Treasury model, this will dampen emissions and reduce the external deficit to less than that indicated below – while pushing up domestic adjustment costs.

<table>
<thead>
<tr>
<th>2050 Target Relative to 1990 Levels</th>
<th>Total payments at $25/t ($ Billions)</th>
<th>Total payments at $50/t ($ Billions)</th>
<th>Total payments at $100/t ($ Billions)</th>
<th>Total payments at $200/t ($ Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-50% (1,144 Mt)</td>
<td>-28</td>
<td>-57</td>
<td>-114</td>
<td>-229</td>
</tr>
<tr>
<td>-75% (1,370 Mt)</td>
<td>-34</td>
<td>-69</td>
<td>-137</td>
<td>-274</td>
</tr>
<tr>
<td>-100% (1,596 Mt)</td>
<td>-40</td>
<td>-80</td>
<td>-160</td>
<td>-320</td>
</tr>
</tbody>
</table>

**ETS Position and Taxpayer Position**

Meeting the overseas payment schedule for this period requires a massive rise in ETS income from today’s levels. Under the existing ETS legislation, the 2020s are estimated by the Treasury to be a decade in which 814 Mt worth of emission charges are collected – some $4 billion a year if the carbon price is $50/t. However, about half of this (406 Mt) is returned as a combination of ongoing subsidies to various sectors and credits to foresters.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Position (Mt)</td>
<td>23</td>
<td>-43</td>
<td>-446</td>
<td>-310</td>
<td>-331</td>
<td>-1,107</td>
</tr>
<tr>
<td>ETS Position (Mt)</td>
<td>-74</td>
<td>140</td>
<td>408</td>
<td>277</td>
<td>294</td>
<td>1,045</td>
</tr>
<tr>
<td>Taxpayer Position (Mt)</td>
<td>-51</td>
<td>97</td>
<td>-38</td>
<td>-33</td>
<td>-37</td>
<td>-62</td>
</tr>
</tbody>
</table>

Source: Treasury projection, and MFE Net Position Report and MFE data for First Period.
Under the Treasury model, the net $2 billion a year in payments meets the nation’s external bill relatively closely, as shown in the table above.\textsuperscript{122} Interestingly, as ETS revenue progressively rises throughout the following two decades, again there is a relatively good match between net ETS income and the external payments required such that over the full 40 years period of the model, they match within 4%. The following graph also charts these balances over the 40 years, with the Taxpayer Position shown as the line essentially breaking even throughout the last three decades.

\begin{center}
\textbf{Positions for the Nation, ETS and Taxpayer – 2008 to 2050}
\end{center}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{chart.png}
\caption{Source: Treasury, \textit{Fiscal Impacts of the ETS}, April 2011.}
\end{figure}

Just what assumptions were used to generate such a close fit is part of the information that has been suppressed. The obligations on emitters to pay are specified in the legislation such that once a particular projection for future emissions is adopted, the tax revenue is clear. Projections for forestry however are not preset and are much more subject to assumptions – with afforestation projections particularly so. This is acknowledged in the ETS Review report and it notes when describing the Treasury model results that: “A significant driver in the scenario relates to assumptions around forestry”.

So exactly what forestry scenario did the Treasury assume in order to produce a result that allowed it to draft for the ETS Review panel the following assurance: “In the long term, these projections yield a broadly fiscally neutral position for the Crown”?

That assurance will not be remotely possible to give if the ETS legislation is amended as proposed. Extending all transition provisions in perpetuity means that for the purpose of estimating the government’s and so the Taxpayer’s Position out to 2050, it must be assumed that these new rules persist until such time as the legislation is changed again.

The further out the projections, the more difficult it becomes to estimate the impact of proposed changes numerically, so we have not attempted to provide an overall estimate. It is nonetheless clear that future income would be cut by many billions of dollars over the next forty years – and this could easily be tens of billions of dollars depending on the assumptions used.
The Treasury had anticipated that an Eternal Transition was one scenario the ETS Review would be interested in, and it produced the following graphic to explain the long term impact of this (where the orange line shows the projected external deficit).\textsuperscript{123}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{exclusion_graph.png}
\caption{Excluding agriculture and extending 2 for 1}
\end{figure}

Again in this projection, the key question that remains unanswered is what assumptions are being made about new afforestation continuing to provide a cushion against New Zealand’s ever-rising gross emissions? Much depends on whether a new wave of crop forest planting sets up a new cycle of big sequestration gains followed by big harvesting emissions.

It is the projections for harvesting in the 2020s however that raise immediate issues and these are confronted in the following section.
1 A phrase used by Winston Churchill that he may also have originated.
2 The MFE Net Position Report looks at the carbon balance for the nation only up to the end of 2012, while the Budget provides ETS position information only at the highest level to 2016.
3 At the December 2010 United Nations Framework Convention on Climate Change (UNFCCC) meeting in Cancun, all parties agreed that, “developed countries should develop low-carbon development strategies or plans.” The Ministry for the Environment however told WWF NZ that: “The decision by the Conference of the Parties at the 16th Conference of the Parties to the UNFCCC in Cancun that developed countries should develop low-carbon development strategies or plans is not a mandatory requirement and New Zealand does not have such a strategy.” MFE further stated that New Zealand currently sees the 2050 emissions reduction target (50% reduction in net emissions below 1990 gross emissions levels) and the Emissions Trading Scheme as being an adequate contribution to meeting the goal agreed in Cancun. Open Letter on Producing a Low Carbon Development Plan, Letter to the Prime Minister, 7 June 2011.
5 The “fair share” concept has been cited by a number of administrations and is central to the current administration’s approach. See: MFE, Updating the New Zealand Emissions Trading Scheme: A consultation document, April 2012.
11 Sweden had earlier announced its intention in 2005 to “break its dependence” on oil and other “fossil fuel raw materials” by 2020. However, climate concerns were only part of the motive and after a change of government in the following year, no legislative commitments have been seen since to underpin this. http://en.wikipedia.org/wiki/Making_Sweden_an_Oil-Free_Society
More recently Norway has indicated that the offsetting portion of the goal may be made conditional on other nations making sufficient commitments.
16 Conversion is based on a rate of 1:0.218 as of May 2012 and numbers read from graph on p. 10. Government of Norway, Climate Cure 2020: Measures and Instruments for Achieving Norwegian Climate Goals by 2020, June 2010.
18 See the UNEP’s climate neutral network. www.unep.org/CLIMATENEUTRAL/Default.aspx?tabid=235
23 Committee on Climate Change, The Fourth Carbon Budget, December 2010, p 111.
34 The Treasury, Fiscal Impacts of the ETS, Appendix, 2011.
35 The Treasury, Treasury ETS Model, 2011.
36 “The values in these parameters are withheld as per other data under 9 (2) (j), as these values provide inputs through which the worth of the total and specific value of forestry rules that are currently the subject of negotiation could be calculated. Specifically such information could provide information on the number of units New Zealand expects to receive from sequestration within, and pay for emissions from, the forest sector at different points in time and for different commitment period lengths. From this, they could derive information as to the worth of the LULUCF and calculate the value of different rules and approaches to accounting for New Zealand.” Email from the Treasury to the Sustainability Council, 19 January, 2012. MFE cited similar grounds when withholding data for projections beyond 2012 but in contrast released those up to 2012.
37 UNFCCC, articles 2 and 3.1.
38 The Sustainability Council wrote an oped that published these high level results about ten days after the information was received: Simon Terry, Carbon books reveal shocking gaps, New Zealand Herald, 6 December 2011.
39 The Treasury was approached at various levels on multiple occasions to meet to discuss not only aspects of the model but carbon accounting in general. Lower level approaches were refused on the basis that MFE was the principal agency for all such questions along with the Auditor General, and the Sustainability Council was directed to the communications manager. An approach to the Treasury’s communications manager on 23 December 2011 was not responded to directly despite reminders and the Council was left to infer a refusal from a letter on 2 March 2012. The Treasury has responded to OIA requests but from the beginning of 2012 answered only selectively to written questions.
40 Tim Groser, Minister of Climate Change, NZ on target to meet its Kyoto commitments, media statement, 12 April 2012.
44 The other emissions liabilities relate to the Projects to Reduce Emissions.
45 MFE data, 2012.
47 The Auditor General has noted that “There is no authoritative guidance on how to account for emissions trading schemes by either participants or governments”. As international accounting standards remain to be set her office has provided a guide for public entities that endorses the Treasury’s approach which she summarises as follows: “From the Government’s perspective, NZUs can be considered a medium of exchange backed by the Government (like currency). Alternatively, they can be considered intangible assets at the time that they are issued by the Government. NZUs
have a market value and the issue of NZUs without charge to participants is an expense to the Government and creates a liability, which, at a minimum, represents an obligation to swap the NZUs for Kyoto AAUs if the participant asks for this” (emphasis added). Office of Auditor General, The Emissions Trading Scheme - summary information for public entities and auditors, August 2011, section 9.

48 In particular, they are combined with revaluation gains and losses. One media source spotted at this time that the Budget had forecast a deficit for the ETS out to 2016: ETS cash cow has lost its moo, Carbon News, 25 May 2012.

49 Kennedy Graham, Green MP, speech during Budget debate, 30 May 2012.

50 Treasury, Fiscal Impacts of the ETS: Appendix, April 2011. The panel was charged with considering what changes should be made to the ETS from 2013.

51 This was detailed in a letter from the Treasury accompanying the OIA release of the document. The most the ETS Review panel saw at the time of the presentation was a graph that depicted the net ETS position over time – not the total expenses and total revenue estimates that made it up. While the review report does list the same data (page 80) this only became available at the very end of the review exercise, not at the time the panel’s views were being informed in April 2011 when the presentation was made.

52 MFE, letter to the Sustainability Council, 11 July 2012. The precise estimate is 73.8 Mt.

53 MFE response to Sustainability Council OIA request, 30 May 2012.

54 We have tried hard to obtain a complete table with actual results and projections for 2012 but have so far have only a partial table that requires assumptions to interpret so these figures have been set aside (see Appendix). The important thing for the moment is that MFE has confirmed that the total deficit currently estimated for the first period is 74 Mt, as the table shows, and the Budget confirms the total revenue and expenditure are in line with that shown.

55 MAF estimate a total for the first tranche of 20 to 22 Mt but MFE has an estimate of 27 Mt in its accounts – released to the Sustainability Council under the OIA. MFE also shows in its accounts a total estimated payout of nearly 55 Mt.


57 The 2007 ETS proposal document quantified the amount at 45 Mt (p 116) and when in legislation, this was estimated to be 51 Mt in Geoff Bertram and Simon Terry, The Carbon Challenge: New Zealand’s Emissions Trading Scheme, BWB, 2010, p 111.


59 MFE figures indicate 64 Mt in one scenario and 66 Mt in its most recent estimate (MFE letter to Sustainability Council, 19 June 2012.) These were made before the 2 July decisions were announced but the office of the Minister for Climate Change Issues has indicated that the flexible land use provisions will not impact these estimates as it has stated that all the forestry compensation will be paid out and NZUs will be clawed back separately in subsequent years - at an estimated rate of 0.25 Mt a year. Over 20 years this could amount to 5 Mt.

60 Aaron Crookston, MFE, email to the Sustainability Council of 10 May 2012.

61 The Treasury, PREFU October 2011, p 97.

62 As a result of the latest LULUCF rules change, even forests planted after 1990 will need to have the full carbon emissions covered – not just the credits earned since 2008 as was the previous rule.

63 Emphasis as per original. The Treasury, Aide Memoire: Further Analysis on 2020 Targets, Note to the Minister of Finance, SH-10-8-4-6-0, 28 July 2009, p 2.

64 The Environment Ministry first registered a contingent liability for future deforestation in its Non-Departmental Financial Statements for the year ended 30 June 2009. This was for 93 Mt, which it valued at $1,995 million - www.mfe.govt.nz/publications/about/annual-report/2008-2009/page4.html. The full statement reads: “The Ministry has a liability on behalf of the Crown relating to the 92.3 million forestry credits. The Ministry of Agriculture and Forestry estimate that 92.3 million forestry credits will be generated. To the extent that these forests are harvested (in subsequent commitment periods), an associated liability is generated that will need to be repaid. As the forestry credits have been incorporated when calculating the current position for the first commitment period, this associated obligation in respect of future commitment periods has been reported as a separate contingent liability. Using the price as at 30 June 2009, this contingent liability can be measured at $1,995 million (2008: nil).” For further details see: Sustainability Council, Taxpayers Face $1.1 Billion Kyoto Liability After ETS Charges Paid, media statement, 23 June 2010.


Aaron Crookston, Manager Business and Finance, Ministry for the Environment, email to Sustainability Council of 7 May 2012.

Aaron Crookston, Manager Business and Finance, Ministry for the Environment, email to Sustainability Council of 7 May 2012.

At least not until contingent liabilities are brought on to the books and they are excluded.

The other was Japan.


Note that the length of this period under the Kyoto Protocol has yet to be determined and may be only five years. However, as the new treaty contemplated will not commence compliance until 2020, and pledges are based on 2020 targets, eight years is taken as the length of the second period, in line with official assumptions.

Latest estimates put this deficit higher at 63 Mt and the ETS position is similarly higher, as further explained in the text below.


New Zealand’s Fifth National Communication under the United Nations Framework Convention on Climate Change, December 2009, page 103. Gross emissions for 2020 are projected to be 76.9 Mt in 2020 vs a target of 53 Mt at –15% of 1990 levels.

Ibid (net emissions for 2020 are projected to be 78.8 Mt in 2020); and The Treasury, Treasury ETS Model Spreadsheet, released 25 November 2011, and update.

Personal communication, MPI, 11 May 2012. The new rules for harvested wood products and the removal of the credit/debits rule affects post 1989 forests but in absence of guidelines for operation of the harvested wood products provisions, modelling has yet to be undertaken.

The update does not incorporate the latest global warming potential values and the loss it shows of just 24 Mt needs to be corrected for these - giving a deficit of 62 Mt. The Treasury series is used as it is essentially identical for the period from 2021 to 2040 to the update (once corrected) but extends out to 2050, as further explained later in the text.


As New Zealand has not set a firm target, should the UN specify a formula that does not meet its preferences, New Zealand could ultimately simply change the target.

MFAT negotiator Stephanie Lee to MFAT briefing, 22 February 2012, Wellington.

http://www.unep.org/publications/ebooks/emissionsgapreport/

WWF-New Zealand, Creative Accounting and the Climate Negotiations: New Zealand’s Approach to Quantified Emissions Limitation/Reduction Obligations (QELROs), February 2012.

The Treasury, Treasury ETS Model, 2011. This is based on a starting point equal to the first period target.

The Treasury, Treasury ETS Model, 2011. An update by MFE produced using old GWPs puts the figure at 161 Mt and this figure is not easily corrected to allow for the new GWPs but it should be relatively close without correction as it is just the difference between the ETS revenue and ETS expenditure streams and these are both on the same GWP basis. As discussed at the end of this subsection, the overall result is very similar if just the Treasury figures are relied on throughout.


Ibid

National Party, Environment & Climate Change: Policy 2011, October 2011. A delayed start date for livestock emissions is worth 4 Mt a year in 2015, rising to 12 Mt a year by 2030. See: The Treasury, Fiscal Impacts of the ETS: Presentation to the ETS Review Panel, April 2011. There is also the prospect of reduced levels of issuing of NZUs through the ‘averaging’ proposal but that does not reduce Crown debt.

The major opportunity it identified for achieving this was a review of the second tranche of compensation to pre-1990 forest owners - estimated to be worth about 30 Mt.
THE CARBON BUDGET DEFICIT

92 These documents can be accessed at http://www.climatechange.govt.nz/consultation/ets/index.html
93 Simon Bridges, Associate Minister for Climate Change Issues, Letter to Sustainability Council, 23 May 2012.
95 In particular, there would be no date in legislation to define when agricultural emissions would enter the ETS and no date for an end to the concessionary 1 for 2 surrender. The Cabinet paper states the changes will: “Maintain the one-for-two surrender obligation after 2012, without specifying an end date in legislation”, “Remove the entry date for surrender obligations for agricultural emissions”, and “Maintain the S$25 fixed price option after 2012, without specifying an end date in legislation”. Minister for Climate Change Issues, Emissions Trading Scheme Review 2012 - final decisions on amendments to the Climate Change Response Act 2002, Cabinet paper, 2 July 2012, p 2 and 3.
97 Interpolated from: Minister for Climate Change Issues, Emissions Trading Scheme Review 2012 - final decisions on amendments to the Climate Change Response Act 2002, Cabinet paper, 2 July 2012, p 5. The assumed carbon price in the Cabinet paper is $6/t. Rises occur for a number of reasons including demand change and suspension of the phase-out provisions.
98 The amount depends on the extent of future allocations of NZUs combined with the effect of delaying the phase out process.
99 New Zealand Treasury, 2020 Emissions Reduction Target: Further Analysis, T2009/1811, 31 July 2009, p.7. The expected gross removals in that year were also 92 Mt so the 180 estimate likely remains reasonable accurate.
100 83 Mt is the net carbon credits available as reported in http://www.mfe.govt.nz/issues/climate/greenhouse-gas-emissions/net-position/index.html
101 Budget 2011, p 45.
104 It also provides ETS income data only to 2030.
105 The total emissions over the period are essentially identical once the update is adjusted to incorporate the new GWPs. (It reflects the legislation that specifies the old GWPs).
106 “In developing countries HFC-23 is usually vented into the atmosphere, which has led to the capture and elimination of this chemical becoming the largest project type under the CDM. Nineteen registered HFC-23 projects are expected to deliver 476 million CERs by 2012, comprising about a half of the emissions reductions expected from the more than 2300 other CDM projects. With the abatement cost for eliminating HFC-23 less than US$1 per tonne of emitted CO2 equivalent, revenues from CDM projects can easily exceed the revenue from HCFC-22 sales.” The Global Corruption Report: Climate Change, April 2011, www.transparency.org
107 One plant stopped HCFC-22 production when it was not allowed to claim further offset credits and resumed operation when it again became eligible.
110 For example, “greened AAUs” that are derived from Russian “Hot Air” credits. While the New Zealand government appears to have made no objections to the framing of the rules for CER credits, it reports that in future agreements “new mechanisms must meet standards that deliver real, permanent, additional and verifiable mitigation outcomes, avoid double counting of effort, and achieve a net decrease and/or avoidance of greenhouse gas emissions”. MFE email to Sustainability Council, 24 February 2012.
111 The Treasury, Treasury ETS Model, 2011, other than First Period data from MFE.
112 Budget Economic and Fiscal Update, May 2011, p 34 and MED Outlook 2011.
113 Committee on Climate Change, The Fourth Carbon Budget, December 2010, p 127.
114 Ibid, p 18.
115 Were the volume of emissions not to reduce (as would be expected with a price rise), the bill for imported credits would be S$215 billion on a weighted average basis, or S$5.5 billion a year on average.
116 The emissions projections relied on at this time were based on a carbon price of S$50/t.
The Treasury does not assist an examination of the possibilities through its refusal to release even projections of total gross emissions so that these could be separated from the net emissions it has released that are clouded by the crop forestry comings and goings. As noted earlier, the UK and Norway are looking to be at essentially zero emissions by this time and the EU committed in October 2009 to the objective of reducing emissions by 80% to 95% by 2050 compared to 1990 levels. Committee on Climate Change, The Fourth Carbon Budget, December 2010, p 86.


The Treasury, Treasury ETS Model, 2011. Note that the results for the First Period have been updated from the 2012 Budget but the other periods are as per the model.