New Zealand and Climate Change in 2013

January 2014

With climate change in 2013, the more things changed…

Climate change certainly made global headlines in 2013. On the science front, we heard about grim prospects under business as usual for projected temperature increases and associated global impacts on water and food security, human health, polar ice, sea level rise and species loss. When it came to extreme weather events, broken records started to sound like, well, broken records accompanied by human tragedy and economic loss.

…the more they stayed the same.

From a New Zealand perspective in 2013, the more the climate changed, the more climate change policy stayed the same. However, action is emerging in other ways, especially from the nation's youth who are concerned about their future, local governments that want to future-proof urban development, and businesses that recognise the value of positioning New Zealand to compete under carbon constraints in the longer term.

This report presents a month-by-month account of selected climate change news highlights from 2013. Links are provided to useful resources.

January 2013	➢ Start of a new commitment period with no clear target for New Zealand
	➢ Entry into force of the 2012 amendments to the NZ ETS
February 2013	➢ Announcement of the Z Energy biofuels initiative
March 2013	➢ Record-breaking drought in the North Island
April 2013	➢ Release of *New Zealand's Greenhouse Gas Inventory 1990-2011*
May 2013	➢ Passing the 400 ppm milestone for atmospheric CO_2 concentrations
June 2013	➢ Publication of IEA's World Energy Outlook Special Report
	➢ Visit by climate activist Bill McKibben to New Zealand
July 2013	➢ Publication of Sir Peter Gluckman's climate change report
	➢ Launch of Generation Zero's nationwide speaking tour
August 2013	➢ Announcement of New Zealand's 2020 emission reduction target
September 2013	➢ Publication of the IPCC AR5 Working Group I report
October 2013	➢ Release of *Wellington City's 2013 Climate Change Action Plan*
November 2013	➢ 19th Conference of the Parties to the UNFCCC in Warsaw
	➢ Announcement on Pure Advantage's green-growth work streams
December 2013	➢ Government decision on future trading of Kyoto units
	➢ Release of New Zealand's *Sixth National Communication* and *First Biennial Report*

January 2013

➢ Start of a new commitment period with no clear target for New Zealand

New Zealand entered the post-2012 period under the international climate change regime without an emission reduction commitment in place. This followed New Zealand's decision late in 2012 to decline a second commitment period under the Kyoto Protocol and to take a non-binding (and then-unspecified) target under the UN Framework Convention on Climate Change (UNFCCC) instead.

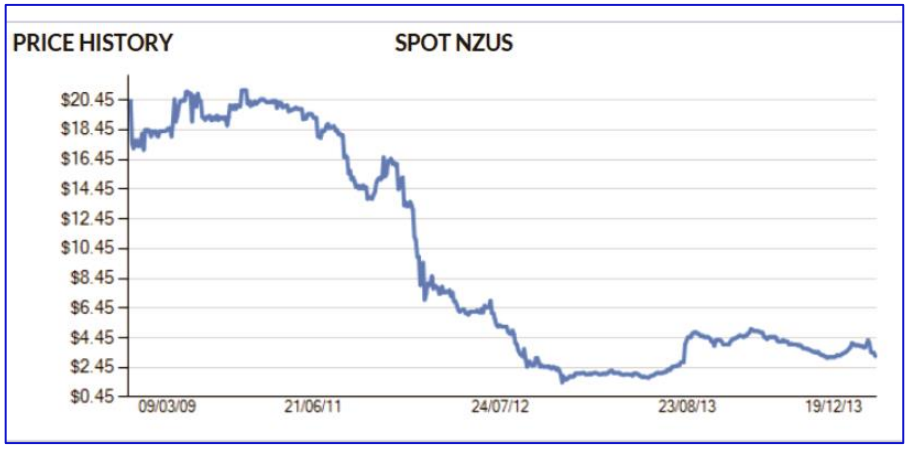
➢ Entry into force of the 2012 amendments to the NZ ETS

January also marked the entry into force of the 2012 amendments to the New Zealand Emissions Trading Scheme (NZ ETS). The amendments reduced scheme impacts post-2012 by:

- Extending the 50% emission discount (one-for-two surrender) for participants in the stationary energy, liquid fossil fuel and industrial sectors, and applying it to the waste and synthetic greenhouse gas sectors which assumed obligations starting in 2013
- Extending the price cap of NZ$25 per tonne of CO_2-e
- Suspending the phase-out of free allocation in the industrial sector, and extending eligibility for free allocation to include liquid fossil fuels used for stationary energy
- Introducing a new forestry offsetting regime, allowing replanting elsewhere as an alternative to paying the unit liability for deforestation
- Deferring indefinitely unit liabilities for biological emissions from agriculture.

The amendments also impacted on government control of unit supply by removing the requirement to match NZUs issued with the government's holdings of Kyoto units and introducing government auctioning within a quantity cap. Although Cabinet formally agreed to consult on auction design during 2012, this has not yet occurred and the government has not yet reported its intentions for auctioning. The quantity cap would not constrain the free allocation of units but would constrain the level of auctioning taking other allocation into account.

Even at an effective level of $12.50 per tonne of CO_2-e in the energy and industrial sectors, the price cap remained largely symbolic throughout 2013 as prices in the New Zealand carbon market plummeted below



Source : https://www.commtrade.co.nz/, 1 January 2014

the NZ$1.00 mark, reflecting the low international price of Kyoto units. Given the low unit prices, some post-1989 forest owners opted to deregister their land under the NZ ETS, buy out their liabilities for future harvest or loss using low-cost Kyoto units, and reregister. In the *Deforestation Survey 2012*, the Ministry for Primary Industries reported that under such low unit prices, NZ ETS liabilities were not a deterrent to deforestation. NZUs closed out 2013 at prices below NZ$4.00 per tonne.

February 2013

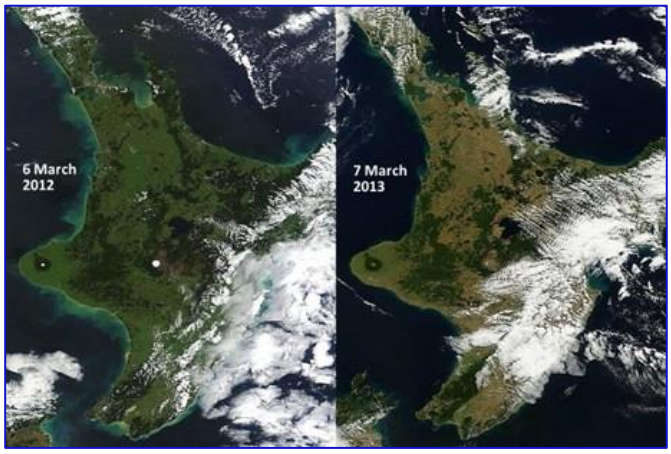
➢ Announcement of the Z Energy biofuels initiative

Z Energy announced a major biofuels initiative to explore biodiesel production from tallow and second-generation technology to transform wood waste into biofuels. In July, the government came to the table with announcement of the "Stump to Pump" Primary Growth Partnership (PGP) programme with Z Energy and Norske Skog. The government will match corporate funding of NZ$6.75 million for the development of biofuel technology.

March 2013

➢ Record-breaking drought in the North Island

By March, the summer had delivered a record-breaking drought in the North Island, the worst in 70 years. Under current climate projections for New Zealand, droughts are expected to become more intense and more frequent in the coming decades. The government signalled that farmers must adapt to the risk of increased drought in the future instead of relying on continual government support. Wellington's water supply reached a "crisis" level, exacerbated by earthquake strengthening of water storage lakes, and reserves declined to the 20-day mark. The Treasury projected that the drought would shave 0.7% off annual real GDP growth in 2013, and estimated the impact on nominal GDP for 2013 at NZ$1.5 billion. In contrast, at several points during the year different parts of the country were impacted by severe flooding. The winter of 2013 also broke records, with NIWA reporting a nationwide mean temperature of 1.2°C above the winter average [over 1971-2000]. As a whole, the year 2013 was the third warmest on record.



Source: NASA
http://www.3news.co.nz/Cyclone-may-bring-rain/tabid/423/articleID/289979/Default.aspx

April 2013

➢ Release of *New Zealand's Greenhouse Gas Inventory 1990-2011*

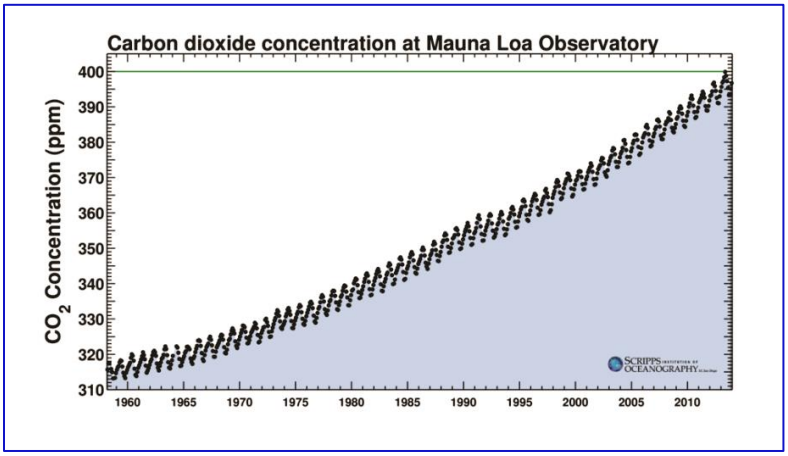
New Zealand's greenhouse gas inventory covering 1990 through 2011 reported that total emissions excluding forestry had increased 22.1% over that period, and net emissions including forestry removals (and using full carbon accounting, not Kyoto accounting) had increased 88.1%. Emissions from international aviation and shipping (accounted for separately) had increased 39% over this period. Reflecting the Kyoto forestry rules and the acquisition of international Kyoto units by NZ ETS participants, New Zealand remains on track to meet its emission reduction commitment under the first commitment period of the Kyoto Protocol, and in fact to record a surplus.

May 2013

➢ Passing the 400 ppm milestone for atmospheric CO_2 concentrations

In May, a new milestone was reached: at the Mauna Loa Observatory in Hawaii, scientists recorded an atmospheric CO_2 concentration of 400 ppm for the first time since the record-keeping began. *National Geographic* reported:

The last time the concentration of CO_2 was as high as 400 ppm was probably in the Pliocene Epoch, between 2.6 and 5.3 million years ago. Until the 20th century, it certainly hadn't exceeded 300 ppm, let alone 400 ppm, for at least 800,000 years. That's how far back scientists have been able to measure CO_2 directly in bubbles of ancient air trapped in Antarctic ice cores.



Source: Scripps Institution of Oceanography http://keelingcurve.ucsd.edu/, 1 January 2014

In response to the milestone, NASA scientist Dr Gavin Schmidt said, "We are a society that has inadvertently chosen the double-black diamond run without having learned to ski first. It will be a bumpy ride."

June 2013

➢ Publication of IEA's *World Energy Outlook Special Report*

In time for the mid-year negotiations in Bonn, the International Energy Agency released the *World Energy Outlook Special Report: Redrawing the Energy-Climate Map*. It reported, "Policies that have been implemented, or are now being pursued, suggest that the long-term

average temperature increase is more likely to be between 3.6°C and 5.3°C (compared with pre-industrial levels), with most of the increase occurring this century." However, four energy policies relying on existing technologies could put us on track to stay below the 2°C goal, reducing global energy-related greenhouse gas emissions 8% (3.1 Gt CO_2-e) below business as usual by 2020. According to the report:

1. *Targeted energy efficiency measures in buildings, industry and transport account for nearly half the emissions reduction in 2020, with the additional investment required being more than offset by reduced spending on fuel bills.*
2. *Limiting the construction and use of the least-efficient coal-fired power plants delivers more than 20% of the emissions reduction and helps curb local air pollution. The share of power generation from renewables increases (from around 20% today to 27% in 2020), as does that from natural gas.*
3. *Actions to halve expected methane (a potent greenhouse gas) releases into the atmosphere from the upstream oil and gas industry in 2020 provide 18% of the savings.*
4. *Implementing a partial phase-out of fossil fuel consumption subsidies accounts for 12% of the reduction in emissions and supports efficiency efforts.*

➢ Visit by climate activist Bill McKibben to New Zealand

Bill McKibben, author, activist and co-founder of 350.org, visited New Zealand as part of his "Do the Maths" tour. His key message was:

> *It's simple math: we can emit 565 more gigatons of carbon dioxide and stay below 2°C of warming — anything more than that risks catastrophe for life on earth. The only problem? Burning the fossil fuel that corporations now have in their reserves would result in emitting 2,795 gigatons of carbon dioxide – five times the safe amount. Fossil fuel companies are planning to burn it all — unless we rise up to stop them.*

July 2013

➢ Publication of Sir Peter Gluckman's climate change report

Sir Peter Gluckman, Chief Science Advisor to the Prime Minister, published a report entitled *New Zealand's Changing Climate and Oceans: The Impact of Human Activity and Implications for the Future*. In the executive summary he wrote:

> *For New Zealand, the resulting impact of changes in wind patterns, precipitation, and the chemistry of our oceans can be expected to be at least as significant as the changes in temperature itself. Such changes are not expected to be uniform across New Zealand; there may be pronounced differences between the North and South Island and between the East and West coasts, and there are also likely to be unequal and important effects on seasonal patterns of rainfall and extreme weather events.*
>
> *In the intermediate term (over the next 30-40 years), New Zealand will face significant adaptive requirements to cope with these shifts in climate and there will*

need to be a consequent readjustment in expectations of frequency of extreme events. The impact of change is likely to be greatest in domains unable to adapt quickly or in those areas already close to limits of tolerance. These include natural and farming ecosystems evolved to function in current conditions and infrastructure requiring a long lead-time to plan and build, but also areas with high vulnerability such as those already prone to flooding or drought. The magnitude of environmental changes will depend in part on the global trajectories of greenhouse gas emissions and land use change. Given there is significant uncertainty in such future trajectories, and natural variability within the system, future climate projections are best represented as probabilistic distributions. It is important to understand that the average predictions represent what is calculated to be the most likely pattern of change, but there is always the potential for more or, indeed, for less extreme change to occur. Effective risk management also requires consideration of the possibility of experiencing more extreme components of the predictive range.

Unfortunately, the scope of the report by design did not extend to policy recommendations.

➢ Launch of Generation Zero's nationwide speaking tour

From July through August, Generation Zero launched a nationwide speaking tour called "What's the Holdup? Getting New Zealand Moving on Climate Change." Throughout the year, Generation Zero demonstrated the power of youth activism by rallying support for its campaigns: 100% Possible (on renewable energy, in conjunction with 350 Aotearoa and WWF), Fast Forward Wellington (on transport) and Auckland's Future. The efforts of these organisations helped to place climate change on the agenda for the year's local government elections.

August 2013

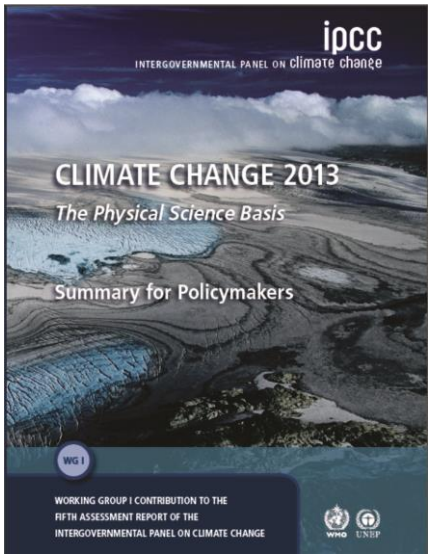
➢ Announcement of New Zealand's 2020 emission reduction target

In August, the government announced New Zealand's next emission reduction target under the UNFCCC: a non-binding, unconditional commitment to reducing greenhouse gas emissions to 5% below 1990 levels by 2020. No further public consultation had been conducted on the target since 2009. The previously offered conditional 2020 target range of 10-20% below 1990 levels will remain on the table in the international negotiations, and the government has retained its long-term target of a 50% reduction below 1990 levels by 2050. The government specified that it was in fact taking responsibility for all of New Zealand's emissions over the whole period from 2013 to 2020, equating to an average annual reduction target for the period (equivalent to a Kyoto quantified commitment) of 3.2% below 1990 levels.

September 2013

➢ Publication of the IPCC AR5 Working Group I report

In September, the Intergovernmental Panel on Climate Change released the first of three volumes of its *Fifth Assessment Report*. With a focus on the physical science basis for climate change and approval by up to 195 governments, the *Summary for Policymakers* produced by Working Group I included the following headline statements:



Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.

Human influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes. This evidence for human influence has grown since AR4. It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.

Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

October 2013

➢ Release of *Wellington City's 2013 Climate Change Action Plan*

Shortly after the local government elections, Wellington City Council released *Wellington City's 2013 Climate Change Action Plan*, laying out actions in seven areas to contribute toward meeting its ambitious emission reduction targets and supporting the city's economic development, resilience and quality of life. Auckland Council worked with stakeholders throughout the year on preparing a draft *Auckland Energy Resilience and Low Carbon*

Action Plan. These developments highlight the potential for local governments to show independent leadership on climate change.

November 2013

➢ 19th Conference of the Parties to the UNFCCC in Warsaw

The 19th Conference of the Parties to the UNFCCC began its meeting in Warsaw, only three days after Typhoon Haiyan caused devastation in Southeast Asia. In the Philippines, the storm took over 6,000 lives and impacted over 12 million people. Classed as a category 5 super typhoon, it is considered the strongest cyclone ever at the point of landfall. In the opening plenary, the Philippines' lead negotiator, Naderev "Yeb" Saño, made an impassioned plea for progress in light of the climate-related disasters unfolding in his homeland and elsewhere in the world and chose to fast during the conference until progress was made.

After 38 hours of overtime, the Parties concluded a modest interim agreement that will keep the process moving toward a comprehensive agreement to take effect from 2020. By the first quarter of 2015, Parties "ready to do so" are invited "to initiate or intensify domestic preparations for their intended nationally determined contributions, without prejudice to the legal nature of the contributions, in the context of adopting a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties towards achieving the objective of the Convention as set out in its Article 2." The agreement urged Parties (especially developed countries) to increase their emission reduction ambitions pre-2020. It addressed finance for developing countries on adaptation and mitigation and established a Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts to help support vulnerable developing countries; however, much work remains to be done to mobilise financing. More substantive progress was made on rules and financing for REDD+ (reducing emissions from deforestation and forest degradation). Fundamentally, the rate of progress in the negotiations is not even remotely adequate to hold the increase in global average temperature below 2°C above pre-industrial levels.

➢ Announcement on Pure Advantage's green-growth work streams

The private-sector-led initiative Pure Advantage announced that two of its seven green-growth work streams were underway: the Home Advantage initiative led by Kiwibank in partnership with Beacon Pathway, Ministry of Business Innovation and Employment, Hobsonville Land Co., Auckland Council and the Productivity Partnership; and the Biofuel & Bio-product Advantage initiative led by Z Energy. This not-for-profit organisation was "formed in the belief that by embracing green growth, New Zealand can realise a wealthier future that's more sustainable in every sense." The other work streams include Geothermal Advantage, Agricultural Advantage, Waste-to-Energy Advantage, Smart Grid Advantage and Biodiversity Advantage.

December 2013

➢ Government decision on future trading of Kyoto units

After consultation, the government decided that Kyoto Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs) would no longer be accepted under the NZ ETS after 31 May 2015 and New Zealand companies would not be able to receive Letters of Approval to participate directly in Clean Development Mechanism projects, essentially severing the direct unit supply into the NZ ETS from the international Kyoto carbon market. This is a consequence of New Zealand's decision not to join the Kyoto second commitment period.

➢ Release of New Zealand's *Sixth National Communication* and *First Biennial Report*

In late December, the government released *New Zealand's Sixth National Communication under the UNFCCC and the Kyoto Protocol* and *New Zealand's First Biennial Report under the UNFCCC*. Under current measures (including the NZ ETS):

- New Zealand's emissions excluding forestry are projected to increase to 29% above 1990 levels by 2020 and 38% by 2030
- New Zealand's net emissions including forestry removals are projected to increase to 130% of 1990 levels by 2020 and 160% by 2030 due to peaks in cyclical harvesting
- Emissions from international aviation are projected to increase nearly 120% above 1990 levels by 2020, and 167% by 2030
- Emissions from international shipping are projected to decline by 6% of 1990 levels by 2020 but then increase by 3% of 1990 levels by 2030.

These projections assume an effective emission price of NZ$5 per tonne of CO_2-e in the energy and industrial sectors, and NZ$12 per tonne in the forestry sector, through 2030. They also assume the ongoing exclusion of biological emissions from agriculture from the NZ ETS.

The two figures below from the *First Biennial Report* illustrate New Zealand's actual and projected emissions over 1990-2030. The first figure shows projected outcomes under current measures (including the NZ ETS), and the second shows the impact of current measures compared to a "without measures" scenario.

Figure 4.1: New Zealand's actual and projected emissions 1990-2030 under the UNFCCC

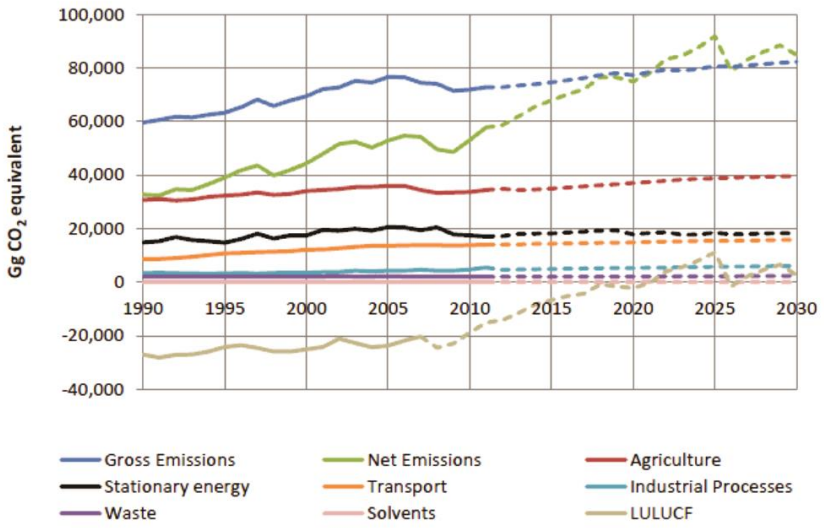
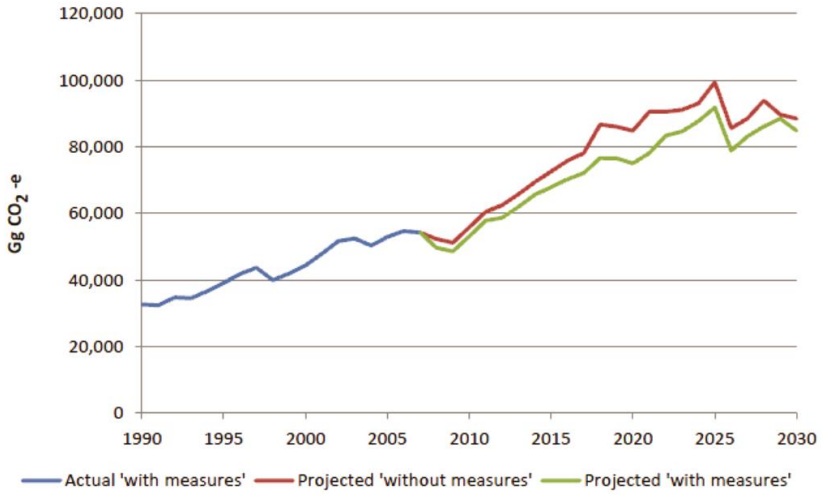


Figure 4.2: Actual and projected net emissions, with measures versus without measures, 1990–2030



These figures highlight the challenges ahead of New Zealand as it chooses how to position itself in a global economy and an international policy regime with increasing emission constraints. The government has not indicated precisely how New Zealand will achieve its 2020 target, although it has stated that Kyoto rules will be applied (subject to necessary adjustments given New Zealand's status outside of the second commitment period). The government reported that it intends to apply its surplus Kyoto units from the first commitment period (projected to be 73.9 million units under the net position report as of October 2013), participate in international carbon markets (presumably including the sourcing of overseas units as offsets), and count emissions and removals from forest management in addition to afforestation, reforestation and deforestation. It remains unclear whether the government will

record a target liability for 2013 through 2020 in the financial account, as was the case for the Kyoto commitment from 2008 through 2012.

Reflections for the coming year

From the vantage point of New Zealand's climate change policy, it appears that 2014 will be a year of planning for major developments in 2015, including a new international agreement for the period from 2020, delinking the NZ ETS from the international Kyoto carbon market, and the next statutory review of the NZ ETS. Hopefully these preparations will be informed by the IPCC's *Fifth Assessment Report.*

However, from the vantage point of avoiding dangerous human interference with the climate system, can we really afford another year of mere planning? Like all countries, New Zealand should be contributing toward the peaking of global emissions by 2015-2020 or as soon as possible thereafter. The investment decisions we make today can lock us into an emissions-intensive future and increase our vulnerability to climate impacts…or move us toward a globally competitive, low-emission development pathway and make us more resilient to climate impacts. In the absence of ambitious leadership from central government, it may fall to individuals, households, schools, businesses, NGOs, communities and territorial and regional authorities to make 2014 a year of positive action on climate change.

About Silver Lining Global Solutions

This report was prepared by Catherine Leining at Silver Lining Global Solutions. Silver Lining is an independent consultancy that can support organisations to address climate change through:

- Visioning and scenario development
- Designing and implementing strategies, policies and programs
- Influencing government policy processes and the international climate change negotiations
- Engaging with stakeholders and building consensus through dialogue
- Growing partnerships for mutual benefit.

Catherine recently joined Wellington-based Motu Economic and Public Policy Research as a part-time Policy Fellow to conduct research and dialogue on a low-emission future for New Zealand. Catherine has also been trained as a Climate Leader under The Climate Reality Project established by Al Gore to help educate the public about climate change. This initiative applies the presentation model used in the documentary "An Inconvenient Truth." Presentations in New Zealand can be requested through the Silver Lining website or at The Climate Reality Project's website.

The views in this report are solely those of the author.

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Links for more information

For hard-copy readers, below are the links referenced in the text.

January 2013

http://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/

http://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/cabinet-minute-12-2310.pdf

http://www.mpi.govt.nz/news-resources/publications.aspx?title=Sustainable%20Forestry%20Bulletin

http://mpi.govt.nz/news-resources/publications?title=Deforestation%20Survey

https://www.commtrade.co.nz/

February 2013

http://z.co.nz/about-z/what-matters-to-us/sustainability/sustainability-news/biofuels/

http://www.beehive.govt.nz/release/pgp-funding-forestry-biofuel-programme

March 2013

http://www.stuff.co.nz/business/farming/8405004/North-Island-drought-worst-in-history

http://www.stuff.co.nz/business/farming/8406712/Continued-drought-support-unsustainable-English

http://www.scoop.co.nz/stories/HL1303/S00148/wellington-water-crisis-drought-risk-driven-by-capitalism.htm

http://www.treasury.govt.nz/budget/forecasts/befu2013

https://www.niwa.co.nz/climate/summaries/seasonal/winter-2013

http://www.niwa.co.nz/climate/summaries/annual/annual-climate-summary-2013

April 2013

http://www.mfe.govt.nz/publications/climate/greenhouse-gas-inventory-2013/index.html

May 2013

http://news.nationalgeographic.com/news/energy/2013/05/130510-earth-co2-milestone-400-ppm/

http://climate.nasa.gov/400ppmquotes/

June 2013

http://www.worldenergyoutlook.org/media/weowebsite/2013/energyclimatemap/RedrawingEnergyClimateMap.pdf

http://math.350.org/

July 2013

http://www.pmcsa.org.nz/wp-content/uploads/New-Zealands-Changing-Climate-and-Oceans-report.pdf

http://www.generationzero.org.nz/

August 2013

http://www.beehive.govt.nz/release/new-zealand-commits-2020-climate-change-target

September 2013

http://www.climatechange2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf

October 2013

http://wellington.govt.nz/your-council/plans-policies-and-bylaws/policies/climate-change-action-plan-2013

http://www.aucklandcouncil.govt.nz/en/planspoliciesprojects/plansstrategies/theaucklandplan/energyresiliencelowcarbonactionplan/Pages/home.aspx

November 2013

http://worldnews.nbcnews.com/_news/2013/12/14/21878590-lights-slowly-return-to-philippines-region-devastated-by-typhoon-haiyan?lite

http://blogs.scientificamerican.com/observations/2013/11/12/was-typhoon-haiyan-a-record-storm/

http://www.rtcc.org/2013/11/11/its-time-to-stop-this-madness-philippines-plea-at-un-climate-talks/

http://unfccc.int/2860.php#decisions

http://www.pureadvantage.org/

December 2013

http://beehive.govt.nz/release/decisions-kyoto-protocol-emission-units

http://www.mfe.govt.nz/publications/climate/nz-first-biennial-report/first-biennial-report.pdf

http://www.mfe.govt.nz/issues/climate/greenhouse-gas-emissions/net-position/#crown