

New Zealand Government



The New Zealand Emissions Trading Scheme

∴ The New Zealand Emissions Trading Scheme Evaluation 2016

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Contents

Executive summary	5
1 Introduction to the New Zealand Emissions Trading Scheme	7
1.1 Why does New Zealand have an emissions trading scheme?	7
1.2 How does the NZ ETS work?	7
1.3 International emissions trading	11
1.4 NZ ETS administration	12
2 The evaluation	15
2.1 Context for this evaluation	15
2.2 Evaluation purpose and scope	15
2.3 Method	16
3 Long-term outcomes	21
3.1 Reduce net emissions below business-as-usual levels	21
3.2 Meeting international climate obligations and maintaining international reputation	23
3.3 Maintaining environmental integrity, equity and economic efficiency, at the least cost, in the long run	25
4 Medium-term outcomes	26
4.1 The functioning and activity of the New Zealand carbon market	26
4.2 Low carbon investment	28
4.3 Regulatory certainty	29
4.4 Signalling future obligations	29
4.5 Maintaining business competitiveness	30
4.6 Sources of international units	30
5 Short-term outcomes	31
5.1 NZ ETS operates effectively and efficiently	31
5.2 Participants meet their obligations and have compliance information	33
5.3 Registry is secure, accurate and operates smoothly and efficiently	35
5.4 Market integrity secured through compliance oversight	35
6 Next steps	37
7 Summary of analysis	38
8 Conclusions	40
Glossary of abbreviations	41
References	42

Tables

Table 1:	NZ ETS emission units	8
Table 2:	NZ ETS sector entry dates	9
Table 3:	Summary of CCRA amendments in 2009 and 2012	9
Table 4:	Exclusions from the scope of the evaluation	15
Table 6:	Stakeholders interviewed	20
Table 7:	NZ ETS impact on forest sector greenhouse gas emissions	22
Table 8:	New Zealand’s Kyoto Protocol obligations and NZ ETS contribution	23
Table 9:	Government administration opex costs (partial) for the NZ ETS, excluding New Zealand Unit (NZU) allocation	32
Table 10:	Participants and compliance trends 2013–15	35
Table 11:	Evaluation of New Zealand Emissions Trading Scheme (NZ ETS) outcomes against evidence	38

Figures

Figure 1:	NZUs, CERs and ERUs in \$NZ prices 2009–15	13
Figure 2:	Types of units surrendered in 2014	14
Figure 3:	Intervention logic map for the NZ ETS	18
Figure 4:	Afforestation and deforestation 2000–14	23
Figure 5:	Spot NZU price history (\$NZ)	27

Executive summary

Context

This report summarises the findings of the New Zealand Emissions Trading Scheme (NZ ETS) evaluation for 2015. It is a supporting document for the 2015/16 NZ ETS review, and could be used to inform discussions about future policy and scheme changes to improve its outcomes and operation. It also provides an interim methodological framework for ongoing NZ ETS monitoring and evaluation. A second stage of evaluation will follow in 2016, with the development of a comprehensive ongoing plan for the monitoring and evaluation of the NZ ETS, informed by the framework and analysis in this report.

Findings

The evaluation found that the NZ ETS has been successful in assisting the Government to comply with international commitments and to meet national targets. The NZ ETS has resulted in an overachievement of New Zealand's first commitment period under the Kyoto Protocol (CP1).

Modelling, and other evidence, suggests that high carbon prices led to new forest planting in 2011 and 2012, but those decisions could also have been affected by other economic considerations. The resulting decrease in net emissions below business as usual levels is small relative to net national emissions. The result was also influenced by foresters bringing forward deforestation before CP1 began, which resulted in reduced net national reported CP1 emissions than would have been the case without the NZ ETS. Participants interviewed from non-forestry sectors, and evidence from surveys, have indicated that because of the low carbon price over most of CP1, the NZ ETS has not significantly influenced domestic emissions or business decisions. Almost all of those interviewed considered that regulatory certainty and stable long-term policy settings would increase the influence of the NZ ETS on business decisions.

The NZ ETS is administered effectively according to available qualitative information, with most participants interviewed finding the NZ ETS documentation, rules and platforms easy to navigate. This is also supported by customer surveys from the Environmental Protection Agency (and the Ministry for Primary Industries).

The New Zealand carbon market is active, with price changes linked to international markets and domestic policy settings. For example, decisions to prevent the use of Kyoto Protocol emission units have led to price increases for New Zealand units.

Constraints

More work is needed on some performance metrics in order to assess how efficient the NZ ETS administration is for the government and participants. Information was also limited on impressions of regulatory certainty, changes in the number of compliance issues, and the long-term impacts of the NZ ETS on environmental integrity, equity, and economic efficiency. Those matters, and responses to this report, will be important parts of the development of the full NZ ETS monitoring and evaluation framework in 2016.

Method

This evaluation was guided by using the *Context, Input, Process and Product* evaluation framework. The resulting focus on the *products* element of the framework was detailed through intervention logic mapping to identify expected NZ ETS outcomes. This evaluation collected evidence from interviews with participants, existing surveys and international reports and has noted information gaps that have constrained analysis on some outcomes.

1 Introduction to the New Zealand Emissions Trading Scheme

The New Zealand Emissions Trading Scheme (NZ ETS) is New Zealand’s primary policy tool for addressing domestic greenhouse gas emissions and removals, and international commitments on climate change.

1.1 Why does New Zealand have an emissions trading scheme?

The NZ ETS was established through a 2008 amendment to the Climate Change Response Act 2002 (CCRA) to:

“provide for the implementation, operation, and administration of a greenhouse gas emissions trading scheme in New Zealand that supports and encourages global efforts to reduce the emission of greenhouse gases”.¹

The NZ ETS objectives outlined in the CCRA are to:

- assist New Zealand to meet its international obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (the Protocol)
- reduce New Zealand’s net emissions of those gases to below business-as-usual levels.²

In December 2006 through to March 2007 (before the NZ ETS was introduced), the Government consulted on possible directions for climate change policy. This consultation led to implementation of an emission trading scheme rather than an emissions tax as the price-based mechanism for reducing New Zealand’s emissions.³

1.2 How does the NZ ETS work?

Some people and organisations may have noticed a small increase in energy prices as businesses that participate directly in the NZ ETS pass on the related costs. Those businesses are required to acquire and surrender emission units to account for their direct greenhouse gas emissions or the emissions associated with their products. Businesses directly participate in the NZ ETS by:

- surrendering emission units to the Government – for example, companies that mine natural gas, as this will emit greenhouse gases when it is used
- earning emission units from the Government – such as owners of forests that absorb greenhouse gases
- being given emission units by the Government – generally those companies that might face significant increases in energy costs and be unable to pass those costs on to customers.

¹ Climate Change Response (Emissions Trading) Response Act 2008, section 5(1)(b).

² Climate Change Response Act 2002, section 3(1)(b).

³ Ministry for the Environment, The Treasury, 2007.

Various regulations and guidance materials set out the requirements on participants to monitor, record and report activities that produce or remove greenhouse gas emissions, and the process for surrendering emission units to the Government to cover emissions associated with their activities each year.

Table 1 explains the emission units used in the NZ ETS.

Table 1: NZ ETS emission units

Emission unit	Description
Forestry NZUs (New Zealand units)	Units given to foresters for removal activities or through the Forestry Allocation Plan. They may be converted to New Zealand assigned amount units (NZAAUs) for offshore sale.
Other NZUs	All other NZUs, including those given to Industrial Allocation recipients. They cannot be converted to NZAAUs for offshore sale.
NZAAUs (assigned amount units)	New Zealand-based AAUs. Can be either forestry NZUs that have been converted into NZAAUs or NZAAUs that have been granted to companies in New Zealand that have participated in Projects to Reduce Emissions (PRE) or the Permanent Forest Sinks Initiative (PFSI).
CERs (Certified Emission Reduction units)	CERs are units generated by Clean Development Mechanism (CDM) projects offshore. Participants in the NZ ETS could buy these units and surrender them to meet their obligations up to 31 May 2015.
ERUs (Emission Reduction Units)	ERUs are units generated by Joint Implementation (JI) projects offshore. Participants in the NZ ETS could buy these units and surrender them to meet their obligations up to 31 May 2015.
RMUs (Removal Units)	RMUs are Kyoto Protocol units generated through storing carbon in trees. Participants in the NZ ETS could buy these units and surrender them to meet their obligations up to 31 May 2015.
NZ\$25 Fixed Price Option	Companies have the option to pay the Government a NZ\$25 fixed price per unit to be surrendered, rather than surrender eligible units.

Source: Environmental Protection Agency 2015

Participants have had staged entry into full NZ ETS obligations, as outlined in table 2. Forestry has had to meet the full obligations to report emissions and surrender emission units since 1 January 2008. It was the first sector to enter, because of the importance of forestry in meeting New Zealand's international obligations for greenhouse gas emissions, such as the ability of foresters to rapidly change harvesting decisions, resulting in large amounts of emissions. The transport fuels, stationary energy and industrial process sectors have had to meet unit surrender obligations since 1 July 2010, and the waste sector since 1 January 2013. Importers of synthetic greenhouse gases also started to incur a cost for those gases from the same date, but only importers of bulk gases are NZ ETS participants. Those who import these gases already incorporated into goods incur a levy at the border.

Table 2: NZ ETS sector entry dates

Sector	Voluntary reporting	Mandatory reporting	Full obligations
Forestry	–	–	1 January 2008
Liquid fossil fuels	–	1 January 2010	1 July 2010
Electricity production	–	1 January 2010	1 July 2010
Industrial processes	–	1 January 2010	1 July 2010
Synthetic gases ⁴	1 January 2011	1 January 2012	1 January 2013
Waste	1 January 2011	1 January 2012	1 January 2013
Agriculture	1 January 2011	1 January 2012	Not yet decided

As a result, the forestry sector has had the longest exposure to the NZ ETS and the largest economic impacts from emissions pricing.

Policy changes since 2007

The initial framework of the NZ ETS was developed to allow for:

- flexibility for New Zealand firms to reduce or offset their emissions
- easy links into global emissions reduction efforts
- a price incentive for planting trees and carbon sequestration and a price disincentive for deforestation
- no inclusion of a fixed cap.

Table 3 sets out the objectives for the broadest CCRA amendments to date, and the resulting policy changes.

Table 3: Summary of CCRA amendments in 2009 and 2012

	Objectives	Policy changes to the NZ ETS
2009	<p>Made in the context of the global financial crisis:⁵</p> <ul style="list-style-type: none"> • reducing impacts on competitiveness and producing greater certainty for economic growth • providing a smoother transition for participants by protecting against price volatility in early years • ensuring affordability with existing fiscal constraints • maintaining flexibility to respond to possible changes in the post-2012 international framework • maximising the degree of harmonisation with the proposed Australian Carbon Pollution Reduction Scheme. 	<p>Key policy changes to the NZ ETS as a result of this included:</p> <ul style="list-style-type: none"> • delayed entry of stationary energy and liquid fossil fuels to 1 July 2010 • introduction of a transition phase from July 2010 to December 2012 (one emission unit required to be surrendered per two tonnes of emissions (one-for-two), and an option to pay for emission permits at a fixed price of \$25) • provision of free allocation on an intensity basis, with lower allocation eligibility thresholds to reduce trans-Tasman competitiveness risks; to be phased out at a rate of 1.3% per annum beginning 2013 • delayed entry of agriculture to the scheme to 2015, and shifted to an intensity-based allocation plan at 90% initially.

⁴ Importers and manufacturers of synthetic greenhouse gases (SGG) in bulk face an obligation to surrender NZUs. The rest of the SGG sector, which does not have an obligation to surrender units under the NZ ETS, face an SGG levy.

⁵ EGI (09) 13/2.

	Objectives	Policy changes to the NZ ETS
2012	<p>These were introduced following the 2011 review and the public consultation process by the Ministry for the Environment.⁶ The Government's objectives for the 2012 CCRA amendments were to:⁷</p> <ul style="list-style-type: none"> • implement the key recommendations of the 2011 NZ ETS Review Panel • ensure that the NZ ETS more effectively supports the Government's economic growth priorities • ensure the NZ ETS helps to deliver New Zealand's 'fair share' of international action to reduce emissions post-2012, and is flexible enough to cater for a range of international outcomes in the period 2013–20 • improve the technical operation of a number of parts of the Act. 	<p>Key policy changes to the NZ ETS as a result of this included:</p> <ul style="list-style-type: none"> • maintaining the \$25 fixed price option after 2012 • maintaining the one-for-two surrender obligation after 2012 • suspending the 1.3% phase out of industrial allocation until participants face full obligations • removing the entry date for surrender obligations for agricultural emissions.

On 6 December 2013 the Government announced its intention to restrict the use of types of Kyoto Protocol emission units within the NZ ETS. Kyoto Protocol Commitment Period One (2008-2012) (CP1) units (ERUs, CERs and RMUs), with the exception of NZAAUs, would be restricted from surrender in the NZ ETS from 1 June 2015. From that point, only NZUs and NZAAUs would be eligible to meet NZ ETS obligations, and the NZ ETS would become a domestic scheme with no international linkages. This was introduced following the international climate meeting in Doha, where New Zealand's access to Commitment Period 2 (CP2) Kyoto Protocol emission units was stopped as a result of New Zealand taking its 2013–20 target under the UNFCCC rather than the Kyoto Protocol. Other factors that informed this approach included:

- significant price differences between NZUs and Kyoto Protocol emission units
- the Crown's holdings of CP1 Kyoto Protocol emission units exceeding what was required to meet New Zealand's CP1 obligation
- the flow of funds offshore, through participants purchasing and surrendering Kyoto Protocol emission units against their NZ ETS obligations.

In 2014 a third round of policy changes to the CCRA were made to restrict the use of Kyoto Protocol emission units when de-registering post-1989 forest land from the NZ ETS after 16 May 2014. This change was in response to the legislation allowing post-1989 forestry participants to register in the NZ ETS, receive NZUs, and then deregister using lower cost CP1 Kyoto units. This practice created fiscal risk to the Crown and reputational risks to the NZ ETS.⁸

⁶ Ministry for the Environment 2012.

⁷ CAB Min (12) 23/10, para 16.

⁸ For further information, see the Regulatory Impact Statement that assesses the risks and changes, at www.treasury.govt.nz/publications/informationreleases/ris/pdfs/ris-mfe-rra-may14.pdf.

1.3 International emissions trading

When New Zealand established the NZ ETS in 2008, the European Union Emissions Trading Scheme (EU ETS) was the only mandatory emissions trading scheme in operation. There are now 17 emissions trading systems, across four continents and covering 35 countries.⁹ This includes nine new trading schemes launched across Asia in the last three years, with China expecting to have a national carbon market from 2017.

Since 2008 there has also been a linking of existing markets internationally. This includes the linking of the Quebec and Californian markets and the proposed inclusion of Ontario, and negotiations to link the Swiss and European market.

The success of carbon markets has varied. EU surveys indicate:

“the EU ETS has raised companies’ awareness of their carbon costs and mitigation potential, which has led to behavioural changes. From 2005 to 2013, the sectors covered by emissions trading have reduced their emissions by 13% (scope corrected for the third trading period).”¹⁰

EU surveys also found that:

“an adequate incentive was only given when the relation between the emissions cap and (verified) emissions ensured a scarcity of allowances ... incentives for low-carbon investments are currently too low to ensure the dynamic efficiency of the system in the long run and may result in stranded investments.”¹¹

Despite this finding the EU remains committed to the ETS being the main instrument to achieve its 2020 target.¹²

Other countries have moved away from emission trading schemes or implemented alternate approaches to reduce emissions. Australia introduced a Direct Action policy, central to which is an Emissions Reduction Fund. British Columbia implemented a carbon tax in 2008. Some South American countries such as Venezuela and Bolivia have taken positions strongly against carbon markets, while South American countries in the Pacific Alliance are in favour of them.¹³

The continued international relevance of New Zealand’s ETS can be considered in line with the existing and proposed ETS systems of some of its principal trading partners: China, the European Union, Australia, the USA, Japan, the Republic of Korea, and other Asian economies.¹⁴

Of these partners:

- the EU was the first to establish an emissions trading system
- China has seven emissions trading scheme pilots and is planning the implementation of a national scheme in 2017

⁹ International Climate Action Partnership (ICAP) 2015.

¹⁰ ICAP *ibid*, p8.

¹¹ ICAP *ibid*, p8.

¹² ICAP *ibid*, p9.

¹³ Edwards & Roberts (2015).

¹⁴ The Treasury (2015).

- the USA has no national scheme but a number of regional schemes are operational, including the Regional Greenhouse Gas Initiative in California, and a proposed scheme in Washington State for 2016¹⁵
- Japan has an established Cap-and-Trade Scheme in Tokyo, but no national scheme; it is developing a market for offsets that it can purchase¹⁶
- the Republic of Korea launched an ETS in 2015, which is the second largest in the world behind the EU's
- Australia has no ETS and no current plan for implementing one.¹⁷

1.4 NZ ETS administration

The Ministry for the Environment is responsible for the overall administration of the CCRA, which includes providing policy advice on the operation of the NZ ETS. To implement the trading scheme, the Ministry works alongside the Environmental Protection Authority (EPA) and the Ministry for Primary Industries (MPI). The Ministry for the Environment primarily provides policy advice and manages legislative changes to the CCRA and supporting legislation. The EPA is responsible for the registration of non-forestry participants, emissions reporting, surrenders, allocation and transfer of units and the maintenance and operation of the New Zealand Emissions Unit Register, which was previously managed by the Ministry of Economic Development (now the Ministry of Business, Innovation and Employment). MPI are responsible for administering certain aspects of forestry participation (some of which are carried out under the delegated authority from the EPA), and to provide joint policy advice with the Ministry for the Environment on agriculture and forestry policy matters.

As the NZ ETS is implemented and administered by three agencies there is a need for good governance to ensure consistency and alignment. The three agencies have clearly identified roles, although MPI and the EPA perform similar functions for different sectors. There are overlaps in some functions provided by MPI and the EPA (for example, contact centre support) and forestry participants are required to interact with both MPI and the EPA.

The current governance structure to support the administration of the NZ ETS consists of two groups, with representatives from the three agencies. The NZ ETS Operational Executive Group provides oversight of the operation of the NZ ETS across government agencies, with a forward-looking focus on strategic matters. The NZ ETS Coordinators Group is responsible for ensuring the implementation and ongoing operation of the NZ ETS is managed efficiently, cohesively and effectively across all government agencies. Interviews with agency staff were outside the scope of the evaluation and so the efficiency of this tri-agency approach has not been reviewed. Improving operational efficiencies in the delivery of the NZ ETS is a key objective of each of the governance groups.

¹⁵ The Clean Power Plan has given states the opportunity to create markets for carbon emissions from coal-powered stations that could expand the breadth of carbon market coverage in the US. For more information, see <http://www2.epa.gov/cleanpowerplan>.

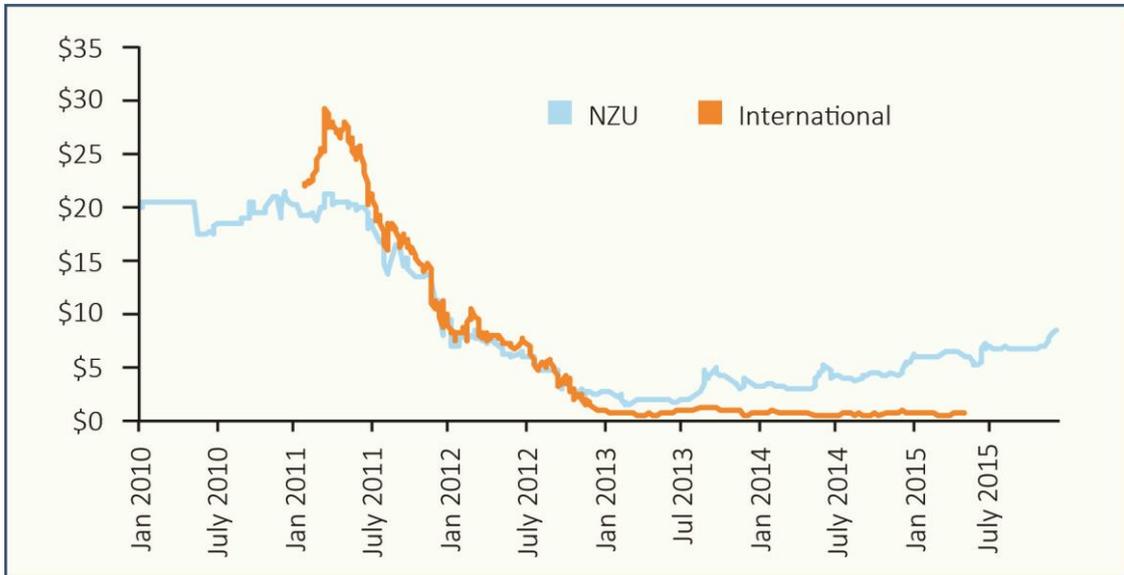
¹⁶ For more information, see <https://www.jcm.go.jp/>.

¹⁷ Although Australia allowed its emitters to purchase Kyoto Protocol emission units for compliance (see <http://carbon-pulse.com/concerns-grow-that-australia-will-rely-on-cheap-cers-to-meet-emissions-targets/>). In addition Australia has a market for emission reductions that are auctioned to the government, which could be considered a form of carbon market.

Prices in the carbon market

The price of carbon in the NZ ETS is a key factor in business decisions to reduce emissions and in encouraging activities for carbon sequestration. Figure 1 shows the trend and difference in prices of units in the NZ ETS from 2011.

Figure 1: NZUs, CERs and ERUs in \$NZ prices 2009–15¹⁸



Key points to note in figure 1 are the drop in prices from the start of 2011 to the end of 2012, and the separation of prices from 2013. These are explained by the use and abundant supply of Kyoto Protocol emission units up to the December 2013 policy announcement, which changed the eligibility of some types of emissions units for surrender in the NZ ETS.

The initial price differences between NZUs and Kyoto Protocol emission units influenced all sectors when selecting units to surrender to meet emission obligations:

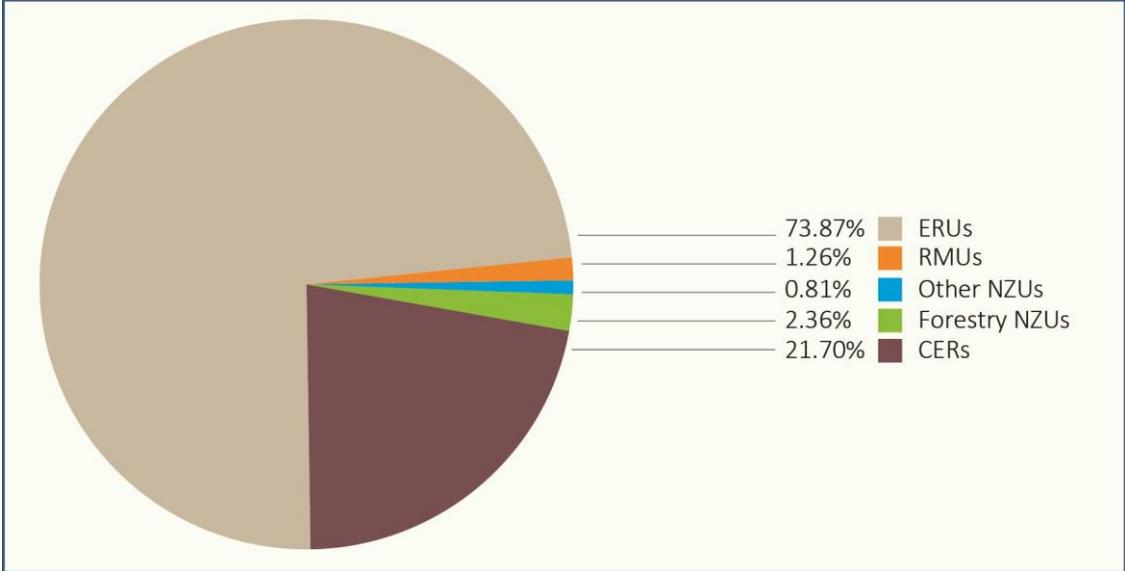
- pre-1990 forest landowners brought their deforestation forward in order to meet surrender obligations with Kyoto Protocol emission units
- post-1989 forests deregistered from the NZ ETS to withdraw from future obligations using Kyoto Protocol emission units
- in some cases post-1989 forests were re-registered to receive another entitlement of NZUs and deregistered again, surrendering the lower priced Kyoto Protocol emission units
- forest landowners harvested their forests but deferred any decisions on replanting versus converting to agriculture
- increase in use of Kyoto Protocol emission units to meet emissions obligations across sectors (essentially, emissions reductions were cheaper to purchase offshore than to create in New Zealand).

The EPA publishes an annual “facts and figures” report that details the types of emission units surrendered each year, and compares them to previous years. Figure 2 uses data from the

¹⁸ Unit price data 1 Jan 2009–31 May 2014 from Point Carbon; 1 June 2014–30 April 2015 from Thomson Reuters; and 1 May–30 October 2015 from OM Financial Ltd (CommTrade). Note that CER and ERU price data are only available from 2011.

latest report, and shows the breakdown of the types of units that have been surrendered for emissions that occurred between 1 January and 31 December 2014 for non-forestry sectors. It shows that international units (ERUs and CERs) made up more than 95 per cent of the units surrendered in 2014, illustrating how the price and supply of those units affect the demand and supply of non-international units.

Figure 2: Types of units surrendered in 2014¹⁹



Source: Environmental Protection Authority, 2015

¹⁹ Environmental Protection Authority (2015).

2 The evaluation

2.1 Context for this evaluation

This evaluation report has been published shortly after the start of consultation for the 2015/16 New Zealand Emissions Trading Scheme (NZ ETS) review. The findings will be relevant to the review discussions and submissions. It also fits within the regular NZ ETS monitoring and reporting activities of the Environmental Protection Authority (EPA) and Ministry for Primary Industries (MPI), results of which are used in this report. Those activities are focused on particular aspects of the scheme, such as the forestry sector or the number and types of units surrendered and registry activity. This initial evaluation, and the future detailed monitoring and evaluation, provides a broader set of performance outcomes to test the NZ ETS against.

2.2 Evaluation purpose and scope

This evaluation provides a structured assessment of how the NZ ETS has performed to date. This will support ongoing NZ ETS implementation, inform the 2015/16 NZ ETS review, and test this evaluation method. A second stage will follow in 2016, with the development of a comprehensive ongoing plan for the monitoring and evaluation of the NZ ETS, as informed by the analysis in this report. The final stage involves implementing the monitoring and evaluation plan.

Five specific exclusions have been made from the scope of the evaluation. These are set out in table 4.

Table 4: Exclusions from the scope of the evaluation

Exclusion	Reason for exclusion
Assess whether the NZ ETS is the most appropriate policy tool to achieve its objectives	The evaluation is focused on the performance of the NZ ETS, rather than its appropriateness as a policy response.
Make recommendations on policy changes	The 2015/16 NZ ETS review will provide recommendations on policy changes. This evaluation will inform those recommendations.
Provide any scenario-building and modelling	The evaluation will rely on existing modelling to make its assessment. Where there are gaps in the information available, these will be identified.
Provide a cost-benefit analysis of the NZ ETS or assess the equity of costs and benefits across the sectors in the NZ ETS	The costs and performance of the NZ ETS are presented, but the project has not been able to identify a suitable benchmark to assess the value for money against. Work on this will be part of the 2016 monitoring and evaluation plan.
Assess any environmental integrity concerns of units traded in the NZ ETS	The evaluation is focused on the performance of the NZ ETS against its objectives, rather than the emissions outcomes from accounting methodologies.

2.3 Method

The 'Context-Input-Process-Product' model (CIPP)²⁰ is a broad evaluation framework which was used to develop the initial scope of the evaluation and high level evaluation questions.

The CIPP model provided a comprehensive and systematic framework to assess the various elements of the NZ ETS. CIPP assesses:

- the **Context** for the policy intervention
- the **Inputs** for an intervention: was the intervention undertaken well?
- the **Process** for the intervention: has the intervention been executed well?
- the **Product** of the intervention: are the outcomes of the intervention as planned?

The table below shows the key questions using the different elements in CIPP, and their link to the purpose of the evaluation.

Table 5 CIPP evaluation elements

High level CIPP element	Key questions	Link to purpose
<p>Context focus:</p> <p><i>Why do we have a NZ ETS?</i></p>	<p><i>How has the NZ ETS developed over time?</i></p> <p><i>What has led to the changes in the policy since implementation?</i></p>	<p>To set the background and provide the narrative.</p>
<p>Inputs focus</p> <p><i>What does the NZ ETS cost to operate?</i></p>	<p><i>What are the resources required to operate the NZ ETS?</i></p> <p><i>What are the implementation costs to government?</i></p> <p><i>What is the compliance cost and transaction costs for participants or businesses?</i></p>	<p>To understand the cost effectiveness of the NZ ETS.</p>
<p>Process focus</p> <p><i>What is the structure and operation of the NZ ETS?</i></p>	<p><i>How is the NZ ETS operated?</i></p> <p><i>How effectively and efficiently has the NZ ETS been delivered and operated (for participants and government agencies)?</i></p>	<p>To understand how the NZ ETS functions, how participants and agencies interact with each other, the participation and compliance rules, and institutional governance (how agencies work together).</p>

²⁰ For more information on the CIPP methodology, see Mertens and Williams, 2012.

High level CIPP element	Key questions	Link to purpose
Product focus <i>What are the impacts of the NZ ETS on emissions and behaviour?</i>	<i>What are the outcomes of the NZ ETS? Do these outcomes deliver on the objectives?</i> <i>What has the impact of the NZ ETS been on our emissions?</i> <i>What has the impact of the NZ ETS been on participants and business behaviour?</i> <i>What has the impact of the price been on emissions and participant behaviour?</i>	Information can be used to understand and measure the impact of the NZ ETS. Strongly linked to the purpose – in understanding the impacts of the NZ ETS against its objectives. Strongly linked to how NZ ETS review 2015 - 2016.

The CIPP model was used to develop high level evaluation questions and identify information gaps in existing data sources. The objectives of the evaluation project were used to assess and prioritise the information gaps. The evaluation subsequently focused on the ‘Product’ aspects of the NZ ETS, being the impact and outcomes of the NZ ETS. Other CIPP focus elements were used as a basis for the report narrative.

An intervention logic mapping workshop was performed with all agencies involved in the development and administration of the NZ ETS to define the expected NZ ETS performance outcomes. A summary of the achievements against each short-, medium- and long-term outcome is presented in table 11. Standards of success were drafted for most of the outcomes but they are not included in this report, as feedback on their use revealed an unacceptable level of subjectivity in interpretation and application. Objective and measurable performance standards will be developed for all outcomes where possible as part of the next stage of the monitoring and evaluation plan.

Figure 3 presents a summary of the results of the intervention logic mapping exercise regarding the expected short-, medium- and long-term outcomes of the NZ ETS, as well as its outputs, activities and inputs.

Figure 3: Intervention logic map for the NZ ETS



Quality assurance

An independent expert consultancy reviewed the evaluation methodology and approach in 2015 and provided suggestions to improve the methodology and address areas of risk and other concerns. A key recommendation from that work was to use an intervention logic map to detail and agree to the expected outcomes from the NZ ETS. The consultancy also reviewed the methodological and analytical approach in this report, including the robustness of the conclusions that it reaches given the evidence and information gaps.

Evidence

Evidence sources included national greenhouse gas inventories and reports under the United Nations Framework Convention on Climate Change (UNFCCC), international reports on the NZ ETS, customer surveys by the EPA and MPI, and Statistics New Zealand's Business Operations Survey 2012.²¹ It needs to be emphasised that almost all evidence sources were not specifically reporting on NZ ETS outcomes as defined in this assessment. Some of the sources are a few years old. All sources are referenced in the report.

New evidence specific to this evaluation was obtained from some NZ ETS participants and stakeholders through the use of structured interviews. The interviewees were chosen in collaboration with the EPA in order to gain a wide range of perspectives. The interviewees were asked the same questions so that quantitative information could be used in this evaluation. Even though there were only 22 interviews, it was obvious that a 'saturation point' was reached, and all key issues had been raised, sometimes a number of times. There are, however, a number of limitations to the interview evidence:

- only a small number of participants were interviewed (22 of the approximately 2,500 participants in the New Zealand Emissions Unit Register²²)
- due to the sample size the results cannot be generalised to all participants, especially to sectors other than forestry, given significantly more forestry stakeholders were interviewed than any other
- interviews were not conducted with participants from each sector (notably no participants from the agriculture sector were interviewed).

To overcome these limitations, other sources of information (as outlined above) were used to test, validate and triangulate interview data.

Information gaps are noted in each section of this report and are summarised in table 11.

Table 6 shows the number of participants interviewed from each sector. Some participants represent multiple sectors. A single meeting was held with six participants representing iwi forestry interests.

²¹ Statistics New Zealand (2013).

²² As at 10 November 2015 (<http://www.eur.govt.nz/>).

Table 6: Stakeholders interviewed

Sector	Number of stakeholders interviewed
Forestry	11
Iwi interests	6
Market intermediaries	3
Emissions-intensive trade-exposed	3
Industrial processes	2
Stationary energy	1
Liquid fossil fuels	1
Waste	1
Agriculture	0

A separate meeting was held with advisors and forestry members of the Climate Change Iwi Leaders Group (CCILG). The CCILG is a sub-group of the Iwi Chairs Forum and focuses on climate change issues. The Government engages with CCILG on the development and implementation of climate change policies of special interest to iwi/Māori.

3 Long-term outcomes

The long-term outcomes defined by the intervention logic map are that the New Zealand Emissions Trading Scheme (NZ ETS) will:

1. reduce net greenhouse gas (GHG) emissions to below business-as-usual levels
2. help New Zealand meet its international climate obligations and maintain its international reputation
3. maintain its environmental integrity, equity and economic efficiency, at the least cost, in the long run.

3.1 Reduce net emissions below business-as-usual levels

This assessment of the impact of the NZ ETS on net GHG emissions against business as usual levels is based on a combination of quantitative data from New Zealand's Sixth National Communication (6NC),²³ deforestation intentions surveys, anecdotal evidence from interviews with forestry investors, and economic analysis of land, log and carbon value. Due to the limited data available to the evaluation, this assessment should be considered an estimate only.

The monitoring and evaluation plan will look at using econometric modelling to quantify the impacts of the NZ ETS on New Zealand's emissions. Such modelling would compare the emissions reduction contribution of the NZ ETS against other economic factors, and in doing so help to determine if carbon prices are correlated to, or causative of, emission reductions.

The forestry sector has faced unit surrender obligations since the NZ ETS was introduced in 2008, so it is the sector most likely to demonstrate emissions reductions and increased sequestration. Other sectors have had much shorter exposure to the NZ ETS, and faced a considerably lower carbon price by the time they entered.

Research for this evaluation, and evidence from the interviews, found no sector other than forestry made emissions reductions over Kyoto Protocol Commitment Period One (2008–12) (CP1) that were directly caused by NZ ETS obligations. The 6NC identified that the waste sector was the only sector to have reduced emissions over CP1 other than forestry, but those reduced emissions were not due to the NZ ETS:

“In 2004 the Government introduced specific standards for landfills in the Resource Management (National Environmental Standards for Air Quality) Regulations. The standards are designed to ensure effective management of discharges of greenhouse gases generated from large landfills. Since the implementation of the Regulation, to the end of 2012 it is estimated that 1640 Gg CO₂-e have been recovered from landfills that would have otherwise contributed to greenhouse gas emissions.”²⁴

The impact of emissions pricing on the forestry sector was estimated in the 6NC and the National Greenhouse Gas Inventory. The estimate included the impact of the NZ ETS and adjusted for government grant schemes aimed at encouraging forest planting. The analysis suggested that the NZ ETS has had a small impact on new planting. Evidence from the interviews supported this conclusion, as does other anecdotal evidence from discussions between Ministry for Primary Industries (MPI) officials and forestry sector investors.

²³ Ministry for the Environment (2013), section 5.4.1.

²⁴ Ministry for the Environment (2013), p 93.

Additionally, a report commissioned by MPI also identifies the increased planting in 2011 and 2012, influenced by the carbon price changing forestry economics.²⁵ There is still a possibility that not all of the new planting was driven by the carbon price, however, as many economic factors were changing for the sector at the same time, and estimates should be considered 'high end' without a full multivariate econometric model.

The estimated impact on emissions as reported in the National Greenhouse Gas Inventory and 6NC is shown in 7.

Table 7: NZ ETS impact on forest sector greenhouse gas emissions

Annual greenhouse gas emissions reduction [kilotonnes CO ₂ e]					
Sector	2008	2009	2010	2011	2012
Forestry	-6.0	-9.7	-25.6	-64.3	-110.2

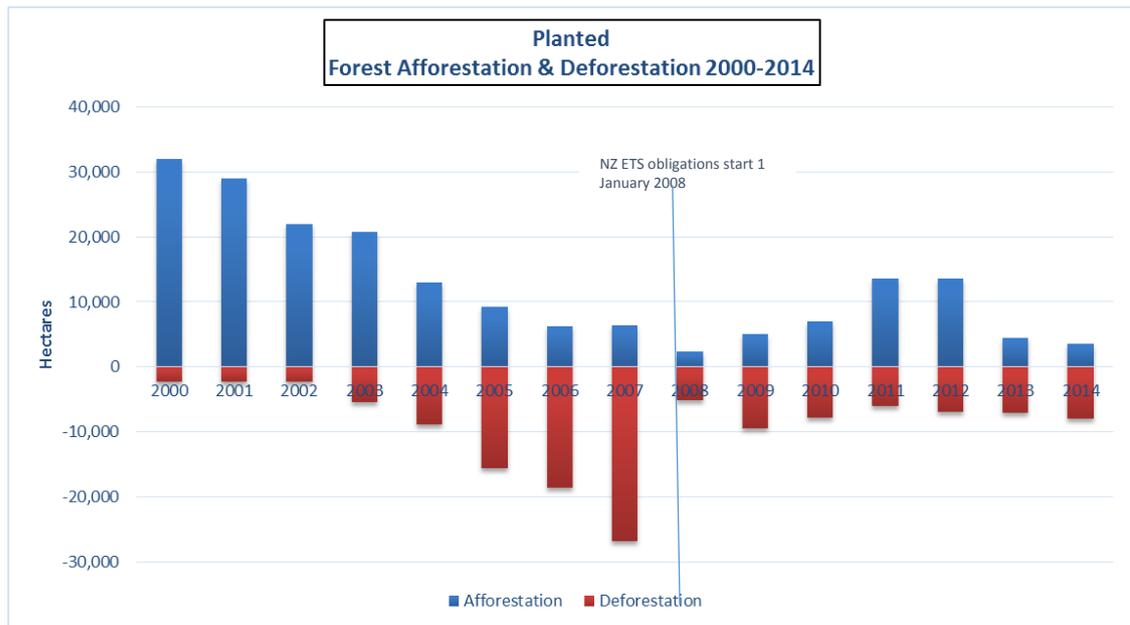
Source: Ministry for Primary Industries, Land Use Carbon Accounting System and the National Greenhouse Gas Inventory

The emissions saving of 110.2 kilotonnes CO₂ in 2012 equates to 0.2 per cent of New Zealand's net emissions for that year, calculated according to the United Nations Framework Convention on Climate Change (UNFCCC) rules. Note, however, that it takes six to seven years after planting to see any significant emissions removals from new planting, so the effect of this new planting is not materially noticeable over CP1.

The data in table 7 does not count the deforestation prior to CP1, which may have been influenced by the implementation of the NZ ETS. Data on land area forested and deforested between 2000 and 2014 clearly illustrates the bringing forward of deforestation in order to avoid the emissions liabilities (figure 4). Without it, the emissions from the deforestation would have been counted in the National Greenhouse Gas Inventory over CP1 and increased the Crown's liability. Such liability would have had to be matched by surrenders of emission units by foresters. The exact quantity of deforestation emissions bought forward is impossible to quantify, however it is apparent that the NZ ETS influenced the timing of the activity.

²⁵ Ministry for Primary Industries (in press).

Figure 4: Afforestation and deforestation 2000–14



Source: Ministry for the Environment 2013²⁶

3.2 Meeting international climate obligations and maintaining international reputation

New Zealand adopted the Convention in 1992 and ratified the Kyoto Protocol in December 2002. This gave rise to a number of obligations under the Kyoto Protocol, which are detailed in 8, as well as the contributions of the NZ ETS to meeting those obligations.

Table 8: New Zealand’s Kyoto Protocol obligations and NZ ETS contribution

Protocol obligation	Target	2015	NZ ETS contribution
A responsibility emissions reduction target for the first commitment period (2008–12) to reduce greenhouse gas emissions to their 1990 levels. (A return to base year (1990) emissions (0%).	CP1 Target – 309.6 Mt CO ₂ e	CP1 Actual ²⁷ – 301.2 Mt CO ₂ e	Contributed to reaching the emissions reduction target in two key ways: <ul style="list-style-type: none"> • incentivising an initial increase in planting when the carbon price was relatively high • creating a market for Kyoto Protocol emission units to enter the NZ ETS and be delivered to the Crown through surrenders. Significant numbers of Kyoto units were delivered to the Crown as the price of Kyoto Protocol emission units dropped below the price of New Zealand Units.

²⁶ Note source data has been updated for this report by the Ministry for Primary Industries from the Land Use Carbon Accounting System and the National Greenhouse Gas Inventory.

²⁷ Ministry for the Environment, 2015.

Protocol obligation	Target	2015	NZ ETS contribution
Submitting an annual inventory of greenhouse gas emissions to the UNFCCC (Article 7)	GHG Inventory published annually	1990–2013 GHG Inventory published	Emissions and forestry data collected through the NZ ETS is used to support the annual GHG inventory report. The NZ ETS has improved the quality and understanding of the data reported.
Formulating, implementing and publishing regular updates to national and regional programmes that contain measures to mitigate climate change and facilitate adequate adaptation to climate change (Article 10)	National Communications Report published biennially	The Sixth National Communications Report, the Biennial Report	The NZ ETS remains the key policy instrument as described in the Sixth National Communications Report on New Zealand’s approach to mitigating climate change.
Cooperating internationally in relation to policies and measures (including scientific and technical research and development) and facilitating public awareness and access to information on climate change			The NZ ETS makes an indirect contribution to this obligation by enabling New Zealand to share experiences with other governments on the NZ ETS, and its development and implementation. This is particularly important in relation to New Zealand’s contribution to the Asia–Pacific Carbon Markets Roundtable. The annual publication of the NZ ETS facts and figures report, the Section 89 report, and other market information publications contribute to public awareness and access to information on climate change.

New Zealand currently has four national targets for reducing greenhouse gas emissions:

- an unconditional target of 5 per cent below 1990 GHG levels in 2013–20
- a provisional target range of reducing emissions by 10–20 per cent below 1990 levels by 2020 if certain conditions are met²⁸
- a provisional post-2020 target of 30 per cent below our 2005 greenhouse gas emissions levels by 2030²⁹
- a long-term target of reducing net emissions by 50 per cent below 1990 levels by 2050.³⁰

²⁸ Conditions attached to our 10–20 per cent target range are:

- a global agreement that sets the world on a pathway to limit global temperature rise of not more than 2°C
- comparable efforts by developed countries
- actions by advanced and major emitted developing countries fully commensurate with their respective capabilities
- effective rules governing land use, land use change and forestry (LULUCF)
- full recourse to a broad and efficient international carbon market.

²⁹ The post-2020 target has been tabled internationally with the United Nations in advance of the Paris meeting in December 2015. New Zealand’s target will remain provisional until the new international agreement is ratified.

³⁰ The 2050 target is based on New Zealand’s net greenhouse gas emissions and will take into account any removals or emissions arising from afforestation or deforestation.

New Zealand has taken an emissions reduction target for 2013–20 under the UNFCCC rather than under the Kyoto Protocol. Current projections indicate New Zealand is on track to meet the target for 2013–20, using a combination of forestry removals, domestic abatement, and recognising the surplus units acquired during CP1 from NZ ETS participant surrenders.

3.3 Maintaining environmental integrity, equity and economic efficiency, at the least cost, in the long run

Assessments of the impacts of the NZ ETS on environmental integrity, equity and economic efficiency performance have not been developed for this evaluation. Given the scheme has been operational for only a few years, changes to such outcomes are expected to be marginal at the moment. The interviews performed for this evaluation, other than the Climate Change Iwi Leaders Group (CCILG) meeting, did not look for impressions on environmental integrity and equity impacts. Comments from the CCILG can be found in section 5.1, under administration and compliance costs for participants.

Research was carried out in 2008 on the possible environmental integrity³¹ and equity³² impacts of the proposed NZ ETS policy. Environmental impacts suggested other than changes to greenhouse gas emissions included:

- increases in afforestation
- decreases in deforestation and intensive land use
- improvements in air quality human health over the long term.

Negative environmental impacts suggested included increased pressures on biodiversity, rivers and natural character and landscapes. Possible equity impacts included the possibility for a disproportionate impact on Maori in some sectors such as pre-1990 forestry, fishing and post-1989 forestry. The authors of the report noted that Maori have less ability to take advantage of NZ ETS post-1989 forestry opportunities, or mitigate negative impacts, because of the constraints related to ownership and use of Maori land.

There have been many policy changes since the 2008 research reports were published, including:

- changes to related legislation and policies, such as removing the renewable energy preference expressed through the Resource Management Act 1991³³
- adjustment of NZ ETS start dates for some sectors
- the introduction and continuation of transitional measures.

The monitoring and evaluation framework developed in 2016 will review publications on environmental integrity, equity and economic efficiency, as well as undertake more qualitative research with interest groups, and propose assessment measures.

³¹ See for example Emissions Trading Group (2008).

³² See for example Ministry for the Environment (2008).

³³ See for example <http://www.parliament.nz/en-nz/pb/legislation/bills/digests/49PLLawBD16541/electricity-renewable-preference-repeal-bill-2008-bills>.

4 Medium-term outcomes

The intervention logic map identified that the medium term outcomes expected of the New Zealand Emissions Trading Scheme (NZ ETS) are:

- 1 New Zealand has a functioning and active carbon market with liquidity
- 2 firms make a rational mix of low carbon investment
- 3 the carbon market is supported by regulatory certainty
- 4 future obligations are clearly signalled to sectors
- 5 New Zealand businesses maintain their competitiveness
- 6 New Zealand has sources of international units
- 7 international targets are met or are on track (see sections 3.1 and 3.2).

4.1 The functioning and activity of the New Zealand carbon market

The New Zealand carbon market had full exposure to international markets up to the end of 2014. Participants were able to purchase international emission units for use in the domestic market, and overseas persons were able to purchase New Zealand emission units from our market. There were several domestic market intermediaries offering a variety of market services including aggregation and international links.

One limitation for this section is government knowledge of carbon market activity. The government does not count the number of trades in the New Zealand carbon market and know their prices. This is because trades are not made through a single market, but can be performed directly between parties or through intermediaries without any reports being made to a market controller. This lack of information limits the ability of this evaluation to report on market activity and liquidity.

Three events have tested the New Zealand carbon market. The first was the removal of the eligibility for surrender of particular Kyoto Protocol emission units in New Zealand because of environmental integrity concerns. This change was announced in December 2012 but it was noted that the supply of units already in New Zealand would mean the policy change was not expected to materially affect market prices.³⁴

The second was the change of access to international carbon markets through the decision to take an emissions reduction target under the United Nations Framework Convention on Climate Change (UNFCCC) instead of the Kyoto Protocol. This led to decisions in December 2013 to restrict the use of some types of Kyoto Protocol emission units within the NZ ETS, and started the transition of the NZ ETS to a completely domestic scheme.³⁵

The third event was the announcement of the content of the 2015/16 NZ ETS review, including the possibility of the ending the transitional phase arrangement of one unit for two emissions.³⁶ Market observers and media identified the possibility of such market tightening

³⁴ New Zealand Government (2012).

³⁵ Climate Change Information New Zealand (2013).

³⁶ New Zealand Government (2015).

several months before the announcement in late November 2015. For example, CarbonNews identified several possibilities in an October 2015 press release.³⁷

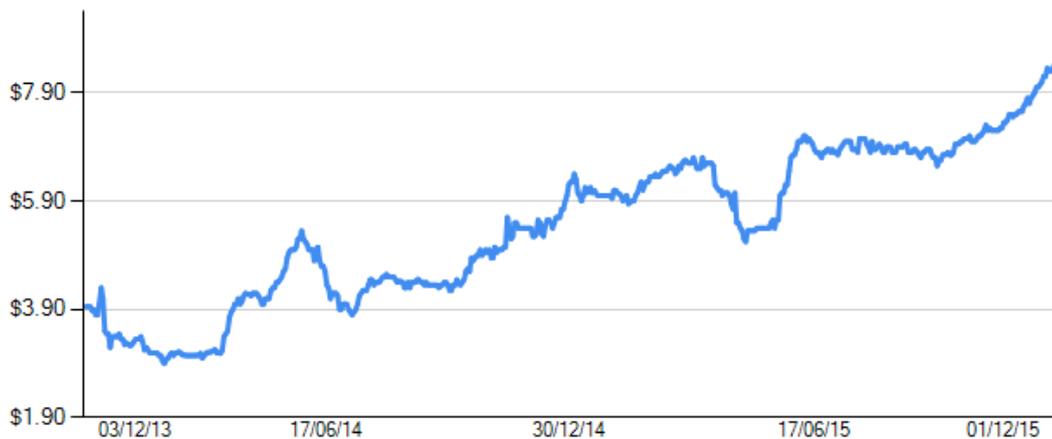
None of those events increased the volatility in the New Zealand carbon market. Figure 5 shows the daily New Zealand carbon market price since December 2013 and illustrates that price change has been gradual. The change to unit eligibility in late 2013 started the price divergence between units that was illustrated in figure 1, but it did not dramatically alter market prices.

Interviewees were not questioned on their experiences with market liquidity, and there is no market activity data that could be analysed, but several factors suggest liquidity has not been an impediment to participants buying and selling emission units:

- 1 the linkages with international carbon markets provided a strong supply of eligible units for purchase, until those links were closed in December 2013
- 2 the gradual price change of New Zealand Units (NZUs) in figure 5 shows low price volatility, which suggests obtaining emission units for compliance purposes over that period has not dramatically impacted market prices.

While there is only limited visibility of trading volumes at present, the relatively smooth change in New Zealand Unit (NZU) price over time suggests that liquidity has not been a major barrier to trading for market participants so far. If NZU trading follows trends seen in other international carbon markets, then over time an increasing proportion of trading volume would occur on exchanges or platforms where it is publicly visible.

Figure 5: Spot NZU price history (\$NZ)



Source: OMF Commtrade Carbon³⁸

³⁷ CarbonNews, October 2015.

³⁸ See figure 1 for a full price history since 2008. Note these are only trades that have been brokered by that organisation and should not be seen to reflect the activity or prices of the NZ carbon market as a whole.

4.2 Low carbon investment

The Business Operations Survey 2012 provides some insight into the impact of the NZ ETS on businesses and their behaviours.³⁹ Because the survey was open to all New Zealand businesses, there are limitations on the interpretation of results of the data as the extent of each business's involvement with the NZ ETS is unknown.

The questions asked in the survey are considered individually below.

1 What is the effect of the NZ ETS on business performance?

In 2012 businesses reported:

- no performance impact due to the NZ ETS (57 per cent)
- they didn't know the impact (34 per cent)
- 8 per cent reported that the NZ ETS constrained their business
- 1 per cent reported that it enhanced their business.

2 Has the NZ ETS increased energy costs for businesses?

A quarter of businesses reported some increases in energy costs in 2012 due to the NZ ETS. A large proportion of businesses didn't know (40 per cent).

3 How would the business deal with increased costs due to the NZ ETS?

Only 120 of businesses surveyed (0.3 per cent) responded to this question. Those who responded indicated that:

- they would absorb costs (74 per cent)
- pass costs on to customers (17 per cent)
- 6 per cent would reduce energy use to minimise the impact of increased costs.

The results show that in 2012 businesses in sectors more likely to have NZ ETS regulatory obligations were only slightly more aware of the impacts on their business and how they might manage these impacts.

Interviews for this evaluation provided more up-to-date detail of the impact of current NZ ETS policy settings on business decisions and on the drivers to change behaviours to reduce emissions. A number of different impacts and behaviours were described:

- nearly all of those interviewed, across all sectors, indicated the NZ ETS had provided no incentive to look at how to reduce their emissions
- business decision-making was influenced early in the implementation of the NZ ETS for two-thirds of those interviewed, but mainly forestry and market intermediaries, although only one-third of those interviewed still consider the NZ ETS in business decisions (again mainly forestry and market intermediaries).

All of those interviewed considered that the NZ ETS could do more to drive emissions reductions in businesses and to incentivise forestry.

Some of those interviewed for this evaluation indicated increased costs associated with the NZ ETS, generally associated with fuel or electricity costs. Where they were acting to reduce

³⁹ Statistics New Zealand, 2013.

fuel and electricity consumption, however, they did not cite the NZ ETS as a driver. Commodity prices and exchange rates were seen as much more significant contributors to changes in energy and fuel costs. A number of those interviewed also mentioned a lack of transparency on NZ ETS costs being passed on by fuel and electricity providers to consumers.

The period of high carbon prices, from 2008–11, influenced business decisions mainly in the forestry sector and individuals or businesses owning land that might be suitable for forestry purposes. As noted earlier, for this sector there was an increase in:

- afforestation (post-1989)
- registration of forests in emission trading scheme (post-1989)
- new businesses or business decisions supporting growth in afforestation, such as increases in nursery seedlings and land purchases.

The low carbon prices from 2012–15 affected some forestry business decisions, leading to reduced planting rates, increased deforestation and conversion of land to agriculture use, although carbon pricing was not alone in influencing these decisions.

The general conclusion from the interviews and survey information is that the NZ ETS and carbon pricing has not yet been significantly embedded in businesses' decisions in New Zealand, other than for forestry land use decisions and for market intermediaries.

4.3 Regulatory certainty

The importance of regulatory certainty was highlighted in interviews for this evaluation. Two-thirds of interviewees, across all sectors, and including the Climate Change Iwi Leaders Group (CCILG), indicated there needed to be long-term signals of stability and surety in the policy settings around the NZ ETS for it to influence business decisions. Additionally, two-thirds of those interviewed (predominantly forestry related) indicated they felt the policy framework and decisions on transitional measures, and the changes to acceptance of Kyoto Protocol emission units, meant that there was not an even playing field across the sectors in the NZ ETS. Similarly, half the interviewees believed the changes to surrendering of international units from 1 June 2015 could have been handled better.

Regulatory updates have been made for technical and environmental integrity reasons, along with changes to the legislation in order to enact policy changes following the 2011 review and to close the opportunity for forestry deregistration arbitrage explained earlier. A full list of legislative changes is in section 1.1, and information on consultation on various regulatory changes can be found at www.climatechange.govt.nz/consultation/

Aside from the interview responses there are no other means of assessing the present levels of participant comfort with regulatory certainty.

4.4 Signalling future obligations

The NZ ETS contains many staged obligations, such as phasing sectors from mandatory reporting to full obligations. Regulatory changes are generally consulted on and signalled unless there is obvious and immediate fiscal risk, as happened with closing the forestry deregistration arbitrage opportunity, and the exclusion of certain emission units from the scheme unless future contracts were held. Possible important changes to current compliance obligations have been identified for consultation in the 2015/16 NZ ETS review.

Interviewees were not asked questions about the sufficiency of signals of future NZ ETS obligations, nor has any other information been obtained. Consistency of policy was a concern for most of those interviewed, as noted above under regulatory certainty.

4.5 Maintaining business competitiveness

The Business Operations Survey 2012 found that 8 per cent of businesses considered the NZ ETS a constraint, as noted above in section 4.2. That survey was performed at a time when the carbon price was relatively high.

The policy changes in 2009 and 2012 were intended to moderate NZ ETS cost impacts on business competitiveness while the effects of the global financial crisis worked their way through the New Zealand and world economies. Those changes included delaying the entry of some sectors into the scheme, introduction and then extension of the transitional phase, and free allocation to eligible firms on an intensity basis, to reduce any trans-Tasman competitiveness risks.

While no assessment was able to be made for this evaluation regarding the impact of the scheme on business competitiveness, it is expected that the low carbon price and those policy changes would have limited or avoided most negative competitiveness impacts from increased NZ ETS-related costs.

4.6 Sources of international units

Policy changes have led to a shift away from an internationally linked NZ ETS to a domestic NZ ETS, as explained in sections 1.2 and 4.1.. This has reduced the flexibility of participants to offset emissions by accessing international markets. This change has come despite the development of emissions trading schemes across the world.

The Government has stated its intention to use future international emissions markets in its Intended Nationally Determined Contribution.⁴⁰

⁴⁰ New Zealand Government 2015.

5 Short-term outcomes

The intervention logic map identified the following as the expected short-term outcomes from the New Zealand Emissions Trading Scheme (NZ ETS):

- 1 the emissions trading scheme operates effectively and efficiently
- 2 participants meet their obligations and have the information required to be compliant
- 3 the New Zealand Emission Unit Register (NZEUR) is secure, operates smoothly and efficiently, and records accurate information
- 4 market integrity is secured through appropriate compliance and oversight measures
- 5 businesses consider the carbon price and the emissions trading scheme when making investment decisions impacting on emissions in the short and long term (see section 4.2)
- 6 the emissions trading scheme helps New Zealand meet its international obligations – either through delivering international units or reducing domestic net emissions (see sections 3.1 and 3.2)
- 7 there is a liquid market for units and there are means to trade (see section 4.1)
- 8 legislation and regulations are updated on time, well communicated to participants, and are appropriate to the operating environment (see section 4.4).

5.1 NZ ETS operates effectively and efficiently

The NZ ETS has been operating for seven years. Currently, four sectors have reporting and emissions obligations and another sector has reporting requirements only. At the end of June 2015 there were 329 mandatory participants and 2207 voluntary participants.⁴¹

Government implementation and administration costs

The approximate cost of implementing and administering the NZ ETS since 2008 is \$38.9 million. Implementation and administration costs to Government for the year 2014/15 is approximately NZ\$6.4 million. Implementation and administration costs since the inception, disaggregated by agency, are shown in table 8. The budgets for 2009/10 to 2012/13 were provided by the Ministry for the Environment Finance Team, taken from supplementary estimates budgets. Budgets for 2013/14 and 2014/15 have been taken from Vote Environment budgets.⁴²

Operational expenditure (opex) figures include direct costs plus corporate overheads, but they exclude climate change policy advice. That is, any costs associated with emissions trading policy advice from agencies, including employee costs, servicing review panels, interactions with Ministers, legislative amendments and consultant fees, are not included in table 9. This is due to the mixing of those costs with the costs for other climate change policy advice such as on international negotiations and non-NZ ETS policy measures. Aside from the initial work designing and implementing the NZ ETS, and for the 2012 review, those unaccounted costs would be expected to be stable over the period.

⁴¹ Environmental Protection Authority 2015.

⁴² Government of New Zealand 2014.

The administration costs for the Ministry for Primary Industries (MPI) are excluded from table 9 because those costs were unable to be easily separated from other policy and operational costs not associated with the NZ ETS.

Table 9: Government administration opex costs (partial) for the NZ ETS, excluding New Zealand Unit (NZU) allocation

Agency	Activity	2009/10	2010/11	2011/12 ⁴³	2012/13	2013/14	2014/15
Ministry for the Environment/ Environmental Protection Authority (EPA) (\$m)	Administration of the NZ ETS.	0	0	0.2	0.2	0.2	0.2
	NZ ETS (EPA): this appropriation is for the implementation and operation of the NZ ETS and maintenance of a register to enable the holding and transfer of climate change units.	0	0	5.0	7.9	6.4	6.4 ⁴⁴
Ministry for Business, Innovation and Employment (\$m)	Emissions trading implementation: this appropriation is limited to the implementation and administration of the NZ ETS.	3.1	4.8	1.6	0	0	0
	Provision of Climate Change Unit Register and information: appropriation is limited to services relating to the operation of a register to enable the allocation and trading of climate change units under the Climate Change Response Act 2002.	1.5	1.6	0.5	0	0	0
Total (\$m)	(Excludes NZU allocations)	4.5	6.4	7.3	7.9	6.4	6.4

Several metrics for determining administrative efficiency and changes were tested for this evaluation. Options included cost per participant, cost per registry transaction, and cost per emission reduction per year. Due to limitations on the data available about the cost of NZ ETS operation and administration, and the various options for defining factors such as transactions and emission reductions, none of the metrics tested proved to be robust or provide relevant evaluative information.

An appropriate metric to test the reasonableness of opex costs will be proposed as part of the 2016 monitoring and evaluation framework.

⁴³ The NZ ETS and New Zealand Emission Unit Register operations were transferred to the EPA from the Ministry for the Environment and the Ministry for Economic Development respectively in December 2011.

⁴⁴ The supplementary estimates for 2014/15 subsequently reduced this figure to 6.1 as a result of an expense transfer to 2015/16.

Administration and compliance costs for NZ ETS participants

All participants interviewed, except for market intermediaries, indicated a financial and resource cost associated with participation in the NZ ETS. Views on the size of the administration costs varied significantly. Some participants regard it as a straightforward process, easy to navigate and requiring minimal resource requirements. Others see it as a complex process with significant administration and management costs. All participants highlighted that the initial engagement with the NZ ETS took greater resources and time than subsequent interactions, although the level of this varied significantly between participants.

A theme emerged among the businesses interviewed regarding a lack of information or lack of clarity around the information required. This was particularly the case for smaller businesses or small forest owners who do not have the resources or ability to keep up to date with all regulations. This lack of information or the clarity of information available made understanding obligations and being able to ensure compliance with the NZ ETS difficult. A number of participants in the forestry sector rely on industry associations and consultants to keep them up to date with requirements, rather than the information provided by the Government.

Participants who manage their NZ ETS obligations themselves reported:

- high initial NZ ETS administration costs, particularly for personnel time
- those costs continued to be high for those participants that are small businesses or individuals
- participants from larger businesses were generally able to adapt to NZ ETS requirements or incorporate them with other monitoring and reporting requirements
- participants receiving NZUs in the forestry and emissions intensive and trade exposed sectors indicated NZ ETS administration costs and time requirements are negligible.

Consultants who were managing NZ ETS administration for clients from the forestry sector indicated a range of costs. Time requirements could range from hours to months, depending on each client's situation. Participants and consultants stated the NZ ETS system was too complex for small forestry participants to manage, given their limited exposure to it. These participants generally engaged a third party to manage obligations for them. Clients of the consultants that were interviewed were from the forestry industry, although some also operated in the agriculture sector.

NZ ETS compliance obligations were viewed as often being in tension with legal requirements for land held by multiple parties, as is sometimes the case with iwi-held land. The slower nature of dealing with multiple owners can be detrimental in a volatile market. The representatives saw the NZ ETS as being overly complex.

5.2 Participants meet their obligations and have compliance information

Participants interviewed were asked about their experience of interactions with agencies, information provided and the ability to use the system. Additionally, in 2014/15 the EPA conducted surveys of 150–250 participants in relation to their contact with the EPA around the NZ ETS, and in 2015 MPI conducted and reported on a small survey of service satisfaction for

its customers.^{45, 46} Where relevant these results have been used as a reference point for the interview findings. Key themes emerging from the interviews were:

- almost all interviewees felt the process itself (including submitting emissions returns, surrendering and transferring units, the allocation process and particularly the online register) was a very efficient and well set up system and support from the EPA Help Desk was good
- a third of the interviewees viewed the amount of paperwork requirements as frustrating
- a third of interviewees thought that the government information provided was confusing and unclear, one of whom was a consultant who had received new clients as a result of the lack of clarity⁴⁷
- all interviewees indicated that interactions with EPA staff had been good.

The EPA survey found 61 per cent of those surveyed said that the service they got from the EPA relating specifically to the NZ ETS was better or much better than they expected. Similarly, just over half of the 78 people surveyed by MPI stated they were either satisfied or very satisfied with the overall quality of service delivered. Participant comments made on the two surveys suggest that the results were affected by matters outside the actual interaction with staff, including policy and science acceptance, therefore it is possible the satisfaction results could be higher than scored.

The EPA checks emissions returns and industrial allocation applications for errors and inconsistencies, and works with participants and allocation recipients to help them comply with the legislative requirements. The EPA also carries out an annual compliance programme which includes selecting a sample of participants and industrial allocation recipients for internal and external (contracted third parties) reviews of compliance. Findings from the annual compliance programmes suggest that the majority of participants and allocation recipients are willing to comply with their obligations and are aware of the legislative requirements. Finally, the EPA uses powers under the Climate Change Response Act 2002 (CCRA) to respond to instances of non-compliance. To date, this has mainly involved completing default emissions returns and imposing penalties for failure to surrender or repay units.

Several examples were provided during interviews of discrepancies in the way non-compliance cases are handled. Interviewees noted situations when errors had been made inadvertently by participants and they had tried to rectify the situation. Some of the interviewed participants in the forestry sector knew of or had been involved in circumstances where there was an inconsistent application of rules, in their opinions. The assertion that there had been inconsistent application of rules has not been tested with either MPI or the EPA.

The EPA publishes annual reports on activity in the NZ ETS, including compliance incidents. Table 10 presents data on the total participants against the number of compliance incidents (for example, failure to submit an emissions return, surrender units or repay units by the specified date in the CCRA) since 2013, being the year all sectors faced full obligations except agriculture. There is an important caveat with this information, in that these figures include cases where people were a few days late in meeting their obligations, but ultimately complied.

⁴⁵ Environmental Protection Authority, unpublished.

⁴⁶ Ministry for Primary Industries, unpublished.

⁴⁷ The EPA Survey 2014/15 found more than half of respondents found information easy to access and easy to understand.

In most cases, these late surrenders were completed within two weeks of their due date. The figures do not reflect enforcement actions for non-compliance that have taken place.

MPI identifies key compliance risks each year and then targets its compliance effort to participants and forest owners believed to have a highest risk of non-compliance. Desktop and field-based audits are undertaken by a dedicated team of compliance staff.

There are not enough data points to make any conclusion on the overall compliance trend at this stage, especially noting the above caveat. The 2016 monitoring and evaluation plan will explore possible metrics for compliance information, including the use of the data below or if particular types of enforcement actions are more appropriate to the outcome.

Table 10: Participants and compliance trends 2013–15

Financial year end June	Participants	Known compliance incidents
2013	2880	249
2014	2490	298
2015	2536	158

Source: Environmental Protection Authority 2015

5.3 Registry is secure, accurate and operates smoothly and efficiently

The EPA manages the registry and is responsible for its integrity, security and availability. Penetration testing of the security processes that support the registry was successfully completed in 2012 and 2015. There were no serious control gaps identified that were fundamental to the system of internal controls, or matters that could seriously compromise the integrity of the system. The registry continues to conform to all the technical requirements for registries under the Kyoto Protocol including its connection to the International Transaction Log.

The EPA Statement of Performance Expectations 2015–16 reported a range of annual activities and measures, including:

- the core NZEUR services are available for use in the New Zealand business hours 99 per cent of the time, excluding scheduled outages
- 95 per cent of applications for industrial allocations are processed accurately within four weeks of receiving the signed application summary
- 98 per cent of participant registrations and account applications are accurately recorded in the Registry within two business days of a properly completed application.

5.4 Market integrity secured through compliance oversight

Mechanisms for oversight of those participating in the New Zealand carbon market are important to:

- mitigate fiscal risk for account holders
- deter criminal activities
- enhance the NZ ETS’s credibility and alignment with other emissions trading schemes.

The EPA, with assistance from the Ministry for the Environment and MPI, is working on opportunities to continuously improve oversight.

6 Next steps

This report is the first stage in the development and implementation of a full evaluation and monitoring framework for the New Zealand Emissions Trading Scheme (NZ ETS). It acknowledges that many measures are not developed at this time, in particular on scheme efficiency for the Government and for participants.

The most valuable evidence for this report was the qualitative analysis from participant interviews. This information was the most up to date, candid, and useful regarding specific outcomes from the intervention logic framework. In developing the full monitoring framework, a review of the interview process used here will be carried out, with a view to ensuring full sectoral and issue coverage. As noted at the start of this report, no interviewee was from the agriculture sector, and other sectors were represented by just one or two people.

The findings of this assessment will be of interest to those looking to improve the outcomes of the NZ ETS through the current review. Business decisions on emission reduction investments, including sequestration through new forest plantings, are strongly influenced by the carbon price. The review contains the possible removal of some transitional policies and those, combined with the development of the NZ ETS into a purely domestic market without access to low cost Kyoto Protocol emission units, may result in increased business awareness of emissions and greater low carbon investment.

The full monitoring and evaluation framework will map changes in NZ ETS outcomes and performance, including business investments, through the use of quantitative metrics where possible.

7 Summary of analysis

Table 11: Evaluation of New Zealand Emissions Trading Scheme (NZ ETS) outcomes against evidence

Outcome	Assessment
New Zealand reduces its net greenhouse gas emissions below business as usual	<ul style="list-style-type: none"> There is evidence that the higher emission unit prices in the first few years of the NZ ETS influenced new forest planting decisions and reduced net greenhouse gas emissions below business-as-usual emissions. This reduction was small, however, compared with net emissions over Kyoto Protocol Commitment Period One (2008–12) (CP1) and there is uncertainty over the exact amount of reductions caused by carbon pricing, compared to other economic factors.
New Zealand meets its international obligations	<ul style="list-style-type: none"> New Zealand has met its obligations under the Kyoto Protocol for CP1 and expects to meet its obligations for the second commitment period (CP2). The NZ ETS has been an important contributor to achieving international targets as a result of the high number of international Kyoto Protocol emission units brought into the NZ ETS to meet participant obligations. The NZ ETS has supported international obligations on greenhouse gas reporting and monitoring, as well as providing a central policy measure to enhance international cooperation in relation to policies and measures (including scientific and technical research and development). It has also facilitated public awareness and access to information on climate change. The NZ ETS has contributed to New Zealand’s international relevance on climate change by providing a clear and committed policy approach. The NZ ETS is the key policy tool mentioned in international climate change commentary.
NZ ETS maintains its environmental integrity, equity, and economic efficiency, at the least cost, in the long run	<ul style="list-style-type: none"> It is too early to make an assessment on the progress towards this outcome. In 2016 a methodological framework will be completed that will enable ongoing NZ ETS monitoring and evaluation, including measures of environmental integrity, equity and economic efficiency.
New Zealand has a functioning carbon market	<ul style="list-style-type: none"> The NZ ETS is a functioning carbon market. There were no concerns regarding market access, information or liquidity from participants or market intermediaries. The change in the NZ ETS structure to a completely domestic scheme over 2013–20 with the loss of international market exposure has, and will continue to, change market activity. There is no evidence, however, that this change has negatively impacted the function of the market.
New Zealand businesses are making low carbon investments	<ul style="list-style-type: none"> The NZ ETS contributed to businesses investing in carbon sequestration such as forestry over the period 2009–12.. The current policy settings of the NZ ETS have not made a significant difference to business investment decisions, in general. The prices of emission units have been too low to affect business costs either for participants or those who receive costs passed down from participants. No participants interviewed indicated that the NZ ETS now influences any investment decisions. There is evidence that some businesses changed the timing of activities to avoid NZ ETS obligations (foresters bought forward deforestation, and synthetic greenhouse gas importers imported and stockpiled bulk quantities of gas).
Market is supported by regulatory certainty	<ul style="list-style-type: none"> This was not able to be fully assessed in this evaluation.
Signalling future obligations	<ul style="list-style-type: none"> This was not able to be fully assessed in this evaluation.

Outcome	Assessment
Maintaining business competitiveness	<ul style="list-style-type: none"> Legislative and regulatory changes from policy decisions were intended to reduce any competitiveness impacts from the NZ ETS on New Zealand businesses following the global financial crisis. Survey results suggested some businesses found the NZ ETS a constraint, although those results were from a time when economic impacts from the crisis were highest, as was the carbon market price. No further assessment of the competitiveness impacts of the NZ ETS was able to be developed for this evaluation.
Sources of international units	<ul style="list-style-type: none"> The NZ ETS was linked to international markets until 1 June 2015. Participants were able to use Kyoto Protocol emission units to meet their compliance obligations. The decision to take an emissions target for 2013–20 outside the Kyoto Protocol means the NZ ETS is now a domestic scheme.
NZ ETS operates effectively and efficiently	<ul style="list-style-type: none"> Participants do not view the NZ ETS as overly burdensome or high in additional costs. The NZ ETS has been implemented, and is managed effectively and efficiently; although there are specific situations where costs are relatively high (eg, compliance for small businesses and penalties when the market price is low). Compliance and market information can be found from a variety of channels and there is a liquid and accessible market for participants. There was support for greater certainty on the future direction of the NZ ETS and the compliance and cost implications for participants. The NZ ETS operates efficiently, with the majority of participants being happy with the existing systems and support, although some interviewees considered that communication and understanding of the NZ ETS could be improved, especially to smaller businesses.
Participants meet obligations and have compliance information	<ul style="list-style-type: none"> The Environmental Protection Authority (EPA) reports on the number of compliance breaches in its annual NZ ETS report. There is insufficient data to be able to conclude on the scale and change of non-compliance since NZ ETS implementation. Reasons provided for non-compliance include being unaware of obligations, miscalculating emission return obligations, losing details in staff turnover, and deliberate non-compliance. The EPA and Ministry for Primary Industries (MPI) work closely with non-compliant persons to ensure they become compliant as quickly as possible. There have been three prosecutions under the Climate Change Response Act 2002 for non-compliance within the forestry sector.
Registry is secure, accurate and operates smoothly and efficiently	<ul style="list-style-type: none"> New Zealand has a good history of constructive engagement with the International Transaction Log (which connects registries and secretariat systems that are involved in the emissions trading mechanism defined under the Kyoto Protocol) and the Registry Systems Administrators forum. Security testing of security processes was successfully undertaken in 2012 and 2015, with no breaches identified. No measure of operational efficiency was able to be developed for this evaluation.
Market integrity is secured through compliance oversight	<ul style="list-style-type: none"> The EPA is leading work with assistance from the Ministry for the Environment and MPI on continuously improving oversight.

8 Conclusions

This evaluation is a first step towards a future methodological framework for New Zealand Emissions Trading Scheme (NZ ETS) monitoring. It used an investment logic mapping exercise to frame the evaluation by identifying the long-, medium- and short-term outcomes of the NZ ETS.

Long-term outcomes

The NZ ETS has supported the Government in meeting its international obligations under the Kyoto Protocol, in particular holding sufficient eligible emission units to meet its target over the first commitment period and in providing robust data to support the national greenhouse gas inventory.

The NZ ETS appears to have contributed, but only minimally, to changes in behaviour and decisions that have reduced net emissions below business-as-usual levels. There is a correlation between increased afforestation and the introduction of the NZ ETS, confirmed both by participant interviews and rates reported through the National Greenhouse Gas Inventory. This increased afforestation occurred when carbon unit prices were high. It is also clear that foresters avoided NZ ETS obligations by deforesting before the implementation of the NZ ETS.

Medium-term outcomes

Evidence from market intermediaries and other interviewees, along with available market price information, signal that the NZ ETS has a functioning and liquid carbon market. This market was fully interconnected with the global carbon market through the purchase and surrender of eligible emission units. While this access has recently changed, this evaluation considers the domestic market to be sufficiently functional and liquid.

The international market link, along with transitional policies intended to reduce the economic impacts of the NZ ETS on businesses, and regulatory uncertainty has led to no significant investment in emissions-reducing actions by New Zealand businesses, although it needs to be noted that this finding is based on survey findings from 2012 and a limited set of interviews. There was investment in carbon sequestration by way of new forest plantings when the carbon price was high, but it appears carbon pricing is no longer an important factor in new forest establishment.

Short-term outcomes

Qualitative data from interviews and survey information, including those by the Environmental Protection Authority and the Ministry for Primary Industries, noted that most participants are satisfied with their dealings with agencies and with available compliance information. All interviewees considered that the process of completing compliance forms and interacting with the registry, including surrendering units and the allocation process, was very efficient. The efficiency of the NZ ETS operations in terms of cost to the Government was not able to be measured.

Glossary of abbreviations

6NC	New Zealand's Sixth National Communication under the United Nations Framework Convention on Climate Change and the Kyoto Protocol
AAU	Assigned Amount Unit
CCRA	Climate Change Response Act 2002
CER	Certified Emission Reduction (units)
CP1	Kyoto Protocol Commitment Period One (2008–12)
EPA	Environmental Protection Authority
ERU	Emission Reduction Unit
FMA	Field Measurement Approach
ITL	International Transaction Log
MBIE	Ministry of Business, Innovation and Employment
MPI	Ministry for Primary Industries
NZ ETS	New Zealand Emissions Trading Scheme
NZEUR	New Zealand Emission Unit Registry
NZU	New Zealand Unit
RMU	Removal Unit
UNFCCC	United Nations Framework Convention on Climate Change

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