

CHAPTER 12

The Voluntary Carbon Market: carbon neutrality, green marketing and CSR

Sean Weaver, Carbon Partnership Ltd¹

12.1 Introduction

The vast majority of businesses in New Zealand have no direct regulatory obligations under the New Zealand Emissions Trading Scheme (NZ ETS) or its parent the Kyoto Protocol, and as a result have no direct involvement in regulatory carbon trading. Indirectly though, most businesses will face a carbon liability arising from the way that the NZ ETS introduces a carbon price into the economy.

But business activity in a carbon market context does not begin and end with either an obligation under a regulatory regime, or a strategic response to a price on carbon. There are ways for businesses to proactively engage with carbon trading either as Corporate Social Responsibility (CSR) carbon buyers (eg pursuing climate friendly or carbon neutrality goals) or potentially as sellers of carbon credits in an existing or future voluntary carbon market.

An understanding of the voluntary carbon market is helpful when we are thinking about carbon neutrality and other carbon-related claims made by businesses seeking to win customers, enhance their branding, or simply do the

¹ The author is grateful to the following people and organisations: Murray Ward of GtripleC for his on-going collaboration and sharing his insights in this sector, particularly in relation to building my understanding of the potential synergies between the voluntary and regulatory carbon markets; the Tyndall Foundation for funding the market research referred to in this chapter; Jim Sinner of the Cawthron Institute for his collaboration on a project to develop a domestic voluntary carbon market instrument for New Zealand; Te Wai Pounamu Office and Head Office of Te Puni Kokiri (Ministry of Maori Development) for funding the Carbon Partnership-led project entitled "Voluntary carbon market opportunities for Maori owners of indigenous forest", and Alastair Cameron for his valuable editorial comments on the draft.

right thing. What is the basis for these claims? Are they quality assured? How do they relate to the NZ ETS, the Kyoto Protocol, and the atmosphere?

The voluntary carbon market is also important in the pre-compliance phase of a regulatory regime. One example is the role that a voluntary carbon market could potentially play in a sector like agriculture in New Zealand, prior to its inclusion in the NZ ETS.

The voluntary carbon market also presents an opportunity to provide a bottom-up complementary measure to top-down regulatory instruments like a carbon tax or a regulatory emissions trading scheme.

The key in the voluntary carbon market is that it provides a framework for voluntary actions rather than merely the compulsion to respond to a regulatory obligation. This is particularly relevant to overarching domestic and international efforts reduce emissions and thereby avoid dangerous human-induced interference in the climate system, the overarching goal of the United Nations Framework Convention on Climate Change (UNFCCC).

This chapter explores the complexities of the voluntary carbon market and the way that it relates to business activity in New Zealand by:

Part 1: Explaining the voluntary carbon market with the following content:

- Comparing the voluntary and the compliance markets
- The intersection between voluntary and compliance spaces
- Carbon prices
- Supply and demand
- Carbon commodity trading
- Carbon neutrality
- Issues that arise when making carbon-related claims
- Quality assurance of voluntary carbon credits
- Additionality

Part 2: Exploring the opportunity to use the voluntary carbon market as a bottom-up complementary measure to top-down carbon taxes and regulatory emissions trading schemes with the following content:

- The limitations of a carbon price signal
- Facilitating clean technology uptake
- The double counting conundrum
- Re-examining carbon neutrality
- Communicating accurate carbon claims

PART 1 EXPLAINING THE VOLUNTARY CARBON MARKET

12.2 Comparing the voluntary and compliance markets

There are two broad types of carbon market: the compliance carbon market(s) and the voluntary carbon market. The compliance carbon market (sometimes called the regulatory carbon market) exists in the space of binding

obligations to reduce or take responsibility for greenhouse gas emissions. Examples of such binding obligations include those taken on by New Zealand when it ratified the Kyoto Protocol, and binding obligations imposed upon certain companies within New Zealand associated with the New Zealand Emissions Trading Scheme (NZ ETS). The voluntary carbon market exists outside the space of binding emissions reduction targets and obligations.

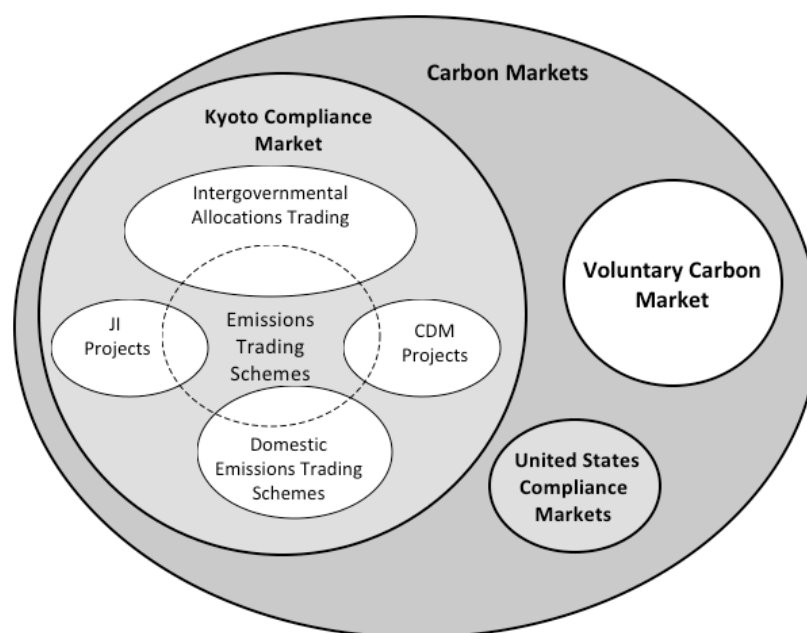
Like any markets involving commodities, a market is defined by a set of attributes involving buyers (demand), sellers (supply) and units of trade (what is being bought and sold). Beyond just buyers and sellers, there is a broad family of market participants: the originators of units, the end-users of the units, intermediary actors that facilitate buying and selling and that may have temporary ownership of the units, and market service providers including information and rating services, legal and accounting services, finance institutions and unit registries. Compliance markets have additional regulatory features that establish legal requirements identifying the Points of Obligation (POs)² to which the legal requirements apply and set out and enforce monitoring and compliance provisions.

Beyond these general attributes there are also features such as geographic scope (the boundary of a given market), chemical scope (eg in “carbon” markets, which greenhouse gases are included in trading schemes) and sectoral scope (which sources of emissions are included).

Figure 1 sets out this broad picture of carbon markets. The key point is that there is not a single “carbon market”; there is an array of markets as defined by their specific attributes. In some cases there are linkages, most notably under the “Kyoto” compliance umbrella. But in other cases there are no direct links and units in these schemes have no “fungibility” with units in other schemes.

² Points of Obligation participate in emissions trading and carbon markets when they are required to meet a binding emissions reduction target and/or take responsibility for their greenhouse gas (GHG) emissions by purchasing carbon units to match their emissions.

Figure 12.1. Carbon markets — Compliance and Voluntary



While the focus of this chapter is on the voluntary carbon market, it is useful to first summarise some key characteristics of compliance markets, because of important compliance-voluntary boundary and interface issues that arise and that will be discussed in detail later in this chapter.

12.2.1 The compliance space

(a) Kyoto Protocol-related

The compliance space is dominated by markets that are directly connected to, or exist because of, the emissions trading provisions of the UNFCCC's Kyoto Protocol — as further elaborated in the Marrakech Accords. The Kyoto Protocol has three flexible mechanisms to assist ratifying nations to meet their emissions reduction targets at least cost. These are Intergovernmental Allocations Trading³, Joint Implementation (JI), and the Clean Development

³ The term “intergovernmental allocations trading” is a specific term referring only to the intergovernmental trade in Assigned Amount Units (AAUs). The broader term “international emissions trading” refers to trade by governments and non-government (usually business) entities in all currencies of compliance carbon units under the Kyoto Protocol, including any domestic emissions trading schemes (eg government to government or business to business trade in AAUs, CERs, ERUs, EUAs and other internationally tradable domestic units). See Table 12.1 for a list of different carbon unit currencies under the Kyoto Protocol.

Mechanism (CDM). Intergovernmental Allocations Trading is the overarching cap-and-trade carbon market scheme operating between countries that took on (and ratified) binding emissions reduction targets under the Kyoto Protocol.

The broad architecture of the emissions trading components of the Kyoto Protocol⁴ involves the following:

- (a) Definition of a community of participant countries with a common goal of meeting a collective emission reduction target (cap). These countries are national level Points of Obligation (POs). This community of participant countries in the Kyoto Protocol is defined in Annex B of the Kyoto Protocol. To use rugby as a metaphor — POs are like the teams in a league who actually play in the tournament. If you are not a PO you can't play emissions trading — you can only watch.
- (b) Determination of a quantitative cap on emissions for the community of participant countries — the sum of the *quantified emissions limitation and reduction commitments* (or targets) as expressed in tonnes of allowed emissions over 2008–2012. This sets the goal for the tournament. To comply (win) all teams must collectively reduce their emissions to the collective cap during the time frame of the tournament.
- (c) Allocation of emission allowances (Assigned Amount Units (AAUs)) to POs — calculated from their individual targets. These allowances can be traded between countries. A country may choose to buy AAUs because it does not expect to reach its binding target through actual reductions in-country and needs to purchase more allowances to match its volume of emissions. A country may choose to sell AAUs because it expects to over-comply with its binding target, so sells surplus allowances and gains foreign income (which it may or may not use for emissions reduction activities). Importantly, the option to sell surplus allowances creates an incentive to over-comply and sell if a country can do so at low cost. This is a key advantage of emissions trading policies over other forms of regulatory policy.

In the rugby metaphor, points represent emissions and there is a finite set of total points in the tournament; a proportion of this total is allocated to each team (eg each team (country) can emit the same volume of carbon as represented by their allocated allowance — this allocation is lower than business as usual emissions for that team); the teams can trade allowances between each other if they choose; some teams will find it easier than others to reduce their emissions to the number of allowances they possess; such teams may choose to over-comply and then have spare allowances to sell to teams who were unable to reduce their emissions to match their allowances;

⁴ M Ward and SA Weaver *The Leader's Guide to International Emissions Trading and Carbon Markets* (GtripleC, Carbon Partnership, and the OClimate Group, 2008).. See www.gtriplec.co.nz/papers-and-articles/emissions-trading/ (last accessed 13 May 2011).

teams that under-comply (by emitting more than their allowances during the game) buy spare allowances from other teams so that their total allowances to match their actual emissions.

- (d) In addition to the AAUs derived from the original target, units called RMUs (removal units) can also be generated by countries for carbon sequestration during the compliance period by certain Land Use, Land Use Change and Forestry (LULUCF) activities. In the rugby metaphor, teams can create some new emission allowances for themselves by removing emissions from the atmosphere by planting forests on the field.
- (e) Provision of the Joint Implementation (JI) instrument to enable emission reduction projects in one developed country PO to be financed by means of the sale of JI units (ERUs) to another developed country PO. Team A can opt to help Team B to reduce its emissions. Team B then gives team A some of its original allowances.
- (f) Provision of the Clean Development Mechanism (CDM) instrument to enable emission reduction projects in a developing country (so not a PO) to be financed by means of the sale of CDM carbon units (CERs) to buyers in a developed country PO. Teams can go off the field and help other sports reduce their emissions and gain additional allowances as a result.

In practice, while some level of national government to government emissions trading occurs under these provisions of the Kyoto Protocol, the majority of Kyoto related trading occurs between entities (firms, organisations and individuals) operating at a sub-national level, and across national borders. The main reason for this is the development of domestic emissions trading schemes wherein a participant country or group of participant countries (that are POs) decides to develop a devolved emissions trading scheme as a domestic policy instrument to achieve their national binding targets at least cost.

Two current examples are the European Emissions Trading Scheme (EU-ETS) established in 2005, and the New Zealand Emissions Trading Scheme established in 2008 (although energy sectors did not become operable until 2010). In addition, in Japan, domestic entities have been major buyers of international Kyoto compliance units on behalf of (and for the ultimate use of) the Government of Japan, but through voluntary agreements, not a regulatory cap-and-trade scheme.

Table 12.1 summarises the various types of compliance units that exist in the overall Kyoto-related compliance space.

Table 12.1 Compliance carbon units (Kyoto Protocol)

Unit	Name	Description
AAU	Assigned Amount Unit	Issued by an Annex B country (including New Zealand) on the basis of its assigned amount (national binding target) pursuant to Articles 3.7 and 3.8 of the Protocol.
RMU	Removal Unit	Issued by an Annex B country on the basis of Land Use, Land-Use Change and Forestry (LULUCF) activities under Articles 3.3 and 3.4 of the Kyoto Protocol.
ERU	Emission Reduction Unit	Generated by a Joint Implementation project under Article 6 of the Kyoto Protocol.
CER	Certified Emission Reduction	Generated from a Clean Development Mechanism project under Article 12 of the Kyoto Protocol.
EUA	EU Allowance Unit	Issued by the European Union Emissions Trading Scheme.
NZU	New Zealand Unit	Issued by the New Zealand Government and traded in the New Zealand Emissions Trading Scheme.

Carbon registries hold these carbon units in secure electronic systems that track the original issuance, transfers and acquisitions of carbon units. Each carbon unit has a unique serial number. Registries are typically not market trading platforms, but they are involved in trading where they receive instructions to shift units between accounts.

These units, however, are not all equally fungible (transferrable) across the various Kyoto-related compliance markets. EUAs and NZUs, for example, are not acceptable compliance units for countries meeting their international Kyoto commitments (although they may be electronically linked to underlying, or supporting AAUs that are). And the acceptance, or not, of Kyoto units (AAUs, RMUs, ERUs and CERs) as legal compliance units in domestic schemes depends on the rules of the particular schemes. The EU ETS, for example, only accepts ERUs and CERs, and has restrictions on quantities and types of units (ie of the related project activity types). Moreover, domestic schemes may prevent units from exiting the boundary of their schemes, ie would prevent their domestic registries transferring certain units to other registries outside the scheme's boundary.

Domestic schemes also do not necessarily have the same overall coverage of gases and sectors as the overarching Kyoto Protocol (eg the EU ETS focuses on medium-large point sources of CO₂). And in some cases (eg the NZ ETS), even where the sectors may be covered, such as small stationary and mobile energy sources, they may not have been covered for the full 1 January 2008–31 December 2012 period of the Kyoto Protocol. This adds a further temporal characteristic to what is covered and what is not in compliance markets.

Finally, a key issue of coverage relevant to New Zealand relates to the LULUCF sector. Of the two Kyoto articles for which RMUs can be issued, only Article 3.3 (covering net CO₂ removals for afforestation, reforestation and deforestation activities since 1 January 1990) is mandatory. Countries could elect, or not, to account for the Article 3.4 LULUCF activities of forest management,⁵ cropland management and grazing land management.

⁵ For example, accounting for contemporary carbon stock changes in forests established prior to 1990, where these forests remain as forests (ie if they are deforested they come under Article 3.3. of the Protocol).

New Zealand chose to not account for these activities, so they fall outside the realm of compliance accounting — for 1 January 2008–31 December 2012 anyway.⁶

Summing up, as set out in table 12.2, the Kyoto Compliance Space can be defined as the geographical, sectoral, temporal, chemical, and participant (PO) boundary within which regulatory carbon accounting occurs.

Table 2 Kyoto-related Compliance Space boundaries and attributes

Compliance Space	
Boundary	Attributes
Geographical:	Countries that ratified the Kyoto Protocol and took on binding emission reduction targets (listed in Annex B of the Kyoto Protocol). Projects in non-Annex B countries (developing countries) that ratified the Kyoto Protocol, and where the project is eligible for and undertaken within the Clean Development Mechanism (CDM) of the Kyoto Protocol.
Sectoral:	Sectors covered by the Kyoto Protocol carbon accounting regime. (essentially all sectors, except international aviation and marine, and partial coverage of LULUCF activities as set out in Articles 3.3 and 3.4) <u>For the NZ ETS:</u> stationary energy, industrial processes, liquid fossil fuel (including domestic aviation and shipping), waste, agriculture, and post-1989 forests.
Temporal:	Kyoto first period: 1 January 2008 to 31 December 2012. (EU ETS and NZ ETS planned to continue post-2012) <u>For the NZ ETS:</u> post-1989 forests from 1 January 2008; stationary energy, industrial processes and liquid fossil fuel from 1 July 2010; waste from 1 January 2013; agriculture from 1 January 2015,
Chemical:	The 6 Kyoto gases – carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons, perfluorocarbons.
Participants:	Points of Obligation are the ultimate compliance participants in a boundary sense (but beyond just these there is a broad family of market participants: the originators of units, intermediary actors that facilitate buying and selling and that may have temporary ownership of the units, and market service providers including information and rating services, legal and accounting services, finance institutions and unit registries).

Of importance to note is that the Compliance Space for Kyoto countries exists by virtue of the Kyoto Protocol and not by any domestic policy framework (eg whether the country elected to establish a domestic emissions trading scheme, carbon tax or other policy measure).

For an activity to fall within the Compliance Space it must comply with all eligibility (boundary) criteria. If an activity fails to comply with the Compliance Space criteria by a single criterion, then it is excluded from the Compliance Space. For example, an activity by a PO may occur within a Kyoto country,

⁶ The international LULUCF accounting rules for the post-2012 period are still being negotiated under the UNFCCC. Given what appears to be emerging, it seems likely that such activities would be included in the future, ie the rules would become mandatory, or if still voluntary that New Zealand would elect to account for them.

within the Kyoto compliance period, and relate to one of the 6 Kyoto gases, but may fall outside the Kyoto sectors (eg agricultural soil carbon in New Zealand) and thereby falls outside the Compliance Space, and by definition falls inside the Voluntary Space.

Generally then, put another way, if an activity complies with all boundary criteria, it will fall within the Compliance Space. There is one significant exception to this rule: where all Compliance Space criteria apply except the participant is not a PO. In this situation the activity falls within the Voluntary-Compliance Space and has effects in both. This is a key issue that is discussed in more detail below.

(b) United States

The Compliance Space is slightly different in the United States where currently the existing or proposed compliance regimes are at the state level and have no connection with federal (national) level carbon accounting or the Kyoto Protocol because the United States did not ratify the Protocol. Here the Compliance Space will be defined according to the scope and boundary definitions of those state-level compliance jurisdictions. The state-level compliance regimes in operation or development are the Regional Greenhouse Gas Initiative (RGGI) in the north-eastern states (that covers fossil-fired electric generating units 25 megawatts and larger and began on 1 January 2009), the California AB-32 cap and trade programme (to begin in 2012) and the contemplated Western Climate Initiative (WCI) in western states of the United States and Canada. Current partner states in the WCI proposal are: California, Montana, New Mexico, Oregon, Utah, and Washington, and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec.

As with the Kyoto-related compliance markets, these United States/North American compliance markets will be defined by their coverage (temporal, geographical, sectoral), units of trade and 'fungibility' rules about linkage with other emissions trading systems. Note that it is conceivable that the final rules for sub-national compliance carbon markets in the United States (such as the California AB 32 programme) may recognise units from the Kyoto Protocol countries as valid currency (fungible) for its compliance purposes.

12.2.2 The Voluntary Space

At the first level of complexity, the Voluntary Space is defined in contradistinction (and mutual exclusivity) to the Compliance Space. In short, it exists where the Compliance Space does not. The Voluntary Space's boundaries (geographical, sectoral, temporal, chemical, and participant), and whether a proposed activity falls within these, are therefore best viewed by first looking at the boundaries of the Compliance Space (see table 12.2 and the further discussion on the United States).

For example, an activity such as avoiding carbon emissions from timber harvesting from pre-1990 forests (plantation or indigenous) in New Zealand (during the Kyoto accounting period) would fall within the Voluntary Space. Similarly, an activity to reduce carbon emissions from electricity generation in Samoa (eg through a fuel swap from fossil diesel to coconut oil-based bio-

diesel⁷) would, in the first instance, fall within the Voluntary Space. It would also have the option of coming into the Compliance Space through the Clean Development Mechanism (CDM) of the Kyoto Protocol if the project proponents elected to use the CDM instead of the Voluntary Carbon Market as the carbon-financing instrument.

Returning to our rugby metaphor, the voluntary carbon market is perhaps like rugby league. It looks like rugby union to the untrained eye, but it is a different game, with different rules, a different league, and is played by different teams.

The voluntary carbon market (sometimes called the “voluntary offsets⁸ market”) typically involves project-based credits traded through bilateral “over the counter” deals. This market also has carbon unit currencies (see table 12.3), but these are different from those of the compliance carbon market and usually not fungible (transferrable) with the compliance market.

Table 12.3 Voluntary carbon units

Unit	Name	Description
VER	Verified Emissions Reductions	These are generic voluntary carbon market emission reductions units (not compliant with the Kyoto Protocol but may adhere to equivalent standards). They are available for sale to corporations and individuals who want to offset their emissions for non-regulatory purposes. Emission offsets in this category are verified by independent agents (eg Gold Standard, CCB), but are not certified by a regulatory authority for use as a compliance instrument.
GS-VER	Gold Standard VER	These are VERs that have been certified by the Gold Standard.
VCU	Voluntary Carbon Units	These are similar to VERs but are issued by the Verified Carbon Standard – the world’s largest voluntary carbon market standard.
CFI	Carbon Financial Instruments	Issued by and traded in the Chicago Climate Exchange. ⁹

⁷ While burning biofuels still generates carbon emissions, biofuels are considered less damaging to the atmosphere because the carbon in the fuel was taken out of the atmosphere only a few years ago and then recycled back into the atmosphere through burning. This is taking place within the short term carbon cycle, whereas the burning of fossil carbon involves the sequestration of carbon into long term storage over millions of years, then rapid release in the terrestrial carbon cycle.

⁸ The term “offsets” is commonly used in both compliance and voluntary markets. In the compliance market, it means project-based units that offset an emission reduction that otherwise would have to be made by a PO (or the need to buy allowance units). In the voluntary market it usually means project-based units that offset emissions that would otherwise need to be accounted for in an assessment of the end-use buyer’s carbon footprint or carbon neutrality.

⁹ The Chicago Climate Exchange (CCX) closed its cap-and-trade component at the end of 2010, but continues to offer a registry programme for CCX offsets.

These units comprise voluntary carbon credits that may be registered in a voluntary registry such as the Markit Environmental Registry.¹⁰ Carbon registries are not compulsory in the voluntary carbon market (transactions can occur without the units being registered at all), but they help to ensure that the same carbon units are not sold to two different buyers. Buyers are increasingly insistent that voluntary carbon units are registered.

At a global scale the voluntary carbon market is considerably smaller than the compliance (regulatory) carbon markets. Table 12.4 shows compliance and voluntary carbon market transaction volumes and values as of 2008 and 2009. The voluntary carbon markets comprise approximately 1% of the global carbon market, which is overwhelmingly dominated by the compliance (regulated) markets. The smaller size of the global voluntary carbon market reflects a different set of drivers compared with compliance markets as seen in Table 4.¹¹ These drivers are discussed below in the section on supply and demand.

Table 12.4 Voluntary and compliance market transactions 2008 and 2009¹²

Transaction Volumes and Values, Global Carbon Market, 2008 and 2009				
Markets	Volume (MtCO ₂ e)		Value (US\$ million)	
	2008	2009	2008	2009
Voluntary OTC	57	51	420	326
CCX	69	41	307	50
Other exchanges	0.2	2	2	12
Total Voluntary Markets	127	94	728	387
EU ETS	3,093	6,326	100,526	118,474
Primary CDM	404	211	6,511	2,678
Secondary CDM	1,072	1,055	26,277	17,543
Joint Implementation	25	26	367	354
Kyoto (AAU)	23	155	276	2,003
New South Wales	31	34	183	117
RGGI	62	813	241	2,667
Alberta's SGER	3	5	34	61
Total Regulated Markets	4,713	8,625	134,415	143,897
Total Global Markets	4,840	8,719	135,143	144,284

¹⁰ The Markit Environmental Registry is a global voluntary market registry. Markit bought the TZ1 registry, which was developed by the New Zealand Stock Exchange. See www.markit.com/en/ (last accessed 13 May 2011).

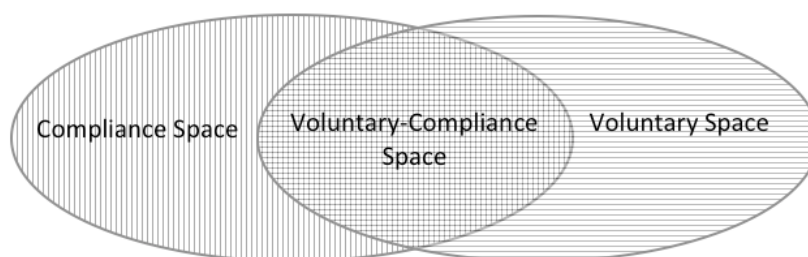
¹¹ However, the value of the respective markets is not an indication of relative investments in emissions reduction activities. The levels of project-based activities, whether in the compliance or voluntary markets, are a better indicator of investments than the trading of original allowances which may reflect little, or no, underlying new investment that reduces emissions.

¹² K Hamilton, M Sjardin, M Peters-Stanley and T Marcello *Building Bridges: State of the Voluntary Carbon Markets 2010* (Ecosystem Marketplace & Bloomberg New Energy Finance, 2010).

12.2.3 Intersection of the Compliance and Voluntary Spaces

As set out above, there are two distinct carbon accounting domains: the “Compliance Space” and the “Voluntary Space”. These domains have geographical, sectoral, temporal, chemical, and participant boundaries. More specifically, the terms “Compliance Space” and “Voluntary Space” refer to the two domains depicted in figure 12.2 where there is no intersection between the two (ie Compliance Space vertical line shading only, Voluntary Space horizontal line shading only). A third term is used to refer to a domain comprising an intersection between the Compliance Space and the Voluntary Space — the “Voluntary-Compliance Space” (also shown in figure 12.2 as the area with vertical and horizontal lines). This domain has all the criteria of the Compliance Space except one: the activities to reduce emissions are undertaken in a voluntary capacity by entities that are not Points of Obligation in the compliance regime.

Figure 12.2 Compliance and Voluntary Carbon Market Spaces



Context: Domestic emissions trading schemes are commonly designed to minimise the number of Points of Obligation (POs). This is either done through an “up-stream” model whereby a relatively small number of POs are located at the top end of the supply chain for key emission sectors such as electricity or transportation fuels (as in the case of the NZ ETS). Alternatively a downstream model can be employed, but limited to relatively large stationary sources of emissions (as in the case of the EU ETS). Hybrid models can also be designed. Whichever model is used, this means that the vast majority of businesses, institutions and individuals in a country are not POs in the compliance carbon market and therefore are not party to compliance emissions trading (unless they choose to enter the carbon market as a CDM project originator, or market broker or trader).

Entities within a state or country that has a compliance carbon market, that are not POs in that market, are potential participants in the voluntary carbon market. If they are located in developed countries that are party to the Kyoto Protocol (ie countries with binding emission reduction targets), their emissions will be accounted for by compliance carbon accounting at the national scale (ie captured by the national carbon accounting system). But because they are not POs (ie they have no binding obligation to reduce or take responsibility for their emissions) their voluntary actions to reduce emissions fail to meet all the criteria of the Compliance Space as far as carbon markets are concerned. Accordingly, they fall into a grey area between the Compliance

Space and the Voluntary Space, called the “Voluntary-Compliance Space”. This (complex) grey area is an important space to be aware of, because it contains the majority of entities in an economy (and therefore the majority of emissions), but they are not participants in compliance carbon markets. Such entities can only passively respond to the carbon price signal generated by a domestic emissions trading scheme (such as the EU ETS or the NZ ETS).

However, carbon markets are valuable tools capable of incentivising the uptake of clean technologies so long as people and businesses can play the game. But those of us who are not POs are forced to watch from the sidelines and thereby miss out on potential clean tech financing opportunities that carbon markets can bestow.

An example of a potential activity in the Voluntary-Compliance Space would be any voluntary energy sector emission reduction activity (such as reducing the fossil fuel emissions footprint) by a business that is not a PO under the NZ ETS. Because the energy sector emissions of such a business are covered under the national carbon accounting system, their voluntary emission reductions as a responsible business entity will generate beneficial outcomes in the Compliance Space (ie for New Zealand as a nation.).

Using our rugby metaphor again, activities in the Voluntary-Compliance Space might involve spectators who come to the sidelines to supply players with energy drinks to improve their game. For example, an upstream energy sector PO in the NZ ETS (a player) will reduce their emissions footprint more if lots of their customers voluntarily reduce their own emissions.¹³ The point here is that the performance of the players on the field (the POs in the compliance game) is enhanced by the voluntary actions of those spectators. If we extend the metaphor, the spectators then might create a market instrument (and start their own competition amongst themselves) to see who can be the best at helping the players on the field. The spectators are motivated to do this because they gain market share and branding benefits if they are seen to be helping the players more than other spectators. This turns into its own game: a voluntary carbon market. This kind of voluntary carbon market though, is different to the one described above in section 12.1.2 because it takes place on the sidelines of a *rugby union* tournament, not a *rugby league* tournament (ie it interacts with the Compliance Space).

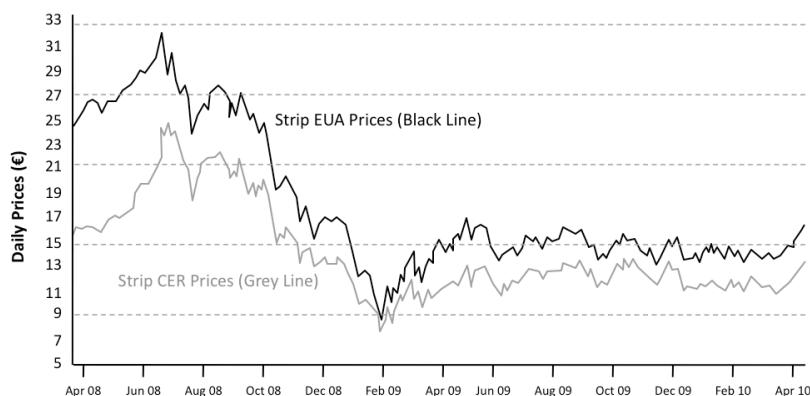
12.3 Carbon prices

In a free market, the price for any commodity is set by the fundamentals of demand and supply. This is as true for carbon commodities as any other.

¹³ This is particularly relevant to the way that the NZ-ETS was designed, whereby there are no requirements for Points of Obligation (POs) to reduce emissions. They simply need to take responsibility for their emissions by possessing (including buying) compliance carbon units for their entire emissions footprint. These POs can then increase the price of their energy goods and services (by the carbon price) to raise the money to purchase any compliance carbon units necessary. This is quite different to a cap-and-trade emissions trading model (like the Kyoto Protocol) that imposes a binding obligation on POs to reduce emissions to below business-as-usual levels.

Compliance carbon prices (figure 12.3) reflect the demand dynamic in the regulatory environment which is much more commodity focused than the voluntary market. Prices during 2008–2009 in the EU ETS, for example, reflect interdependencies with oil prices and other energy commodity prices (eg natural gas and coal) levelling off in 2009 at €15 per tonne for EUAs, and around €12 for secondary CER¹⁴. The lowered economic activity due to the global recession has also had a significant effect on emissions.

Figure 12.3 Carbon prices EU ETS 2008–2009¹⁵



The fundamentals of demand and supply, which set the value of carbon in the voluntary carbon market, are very different than in the compliance market. The carbon price in the voluntary market reflects the diversity of buyers' willingness to pay and desire for carbon and co-benefits. In turn this can depend on buyers' views about the attributes of specific projects, including co-benefits (ie values other than carbon, such as biological diversity).

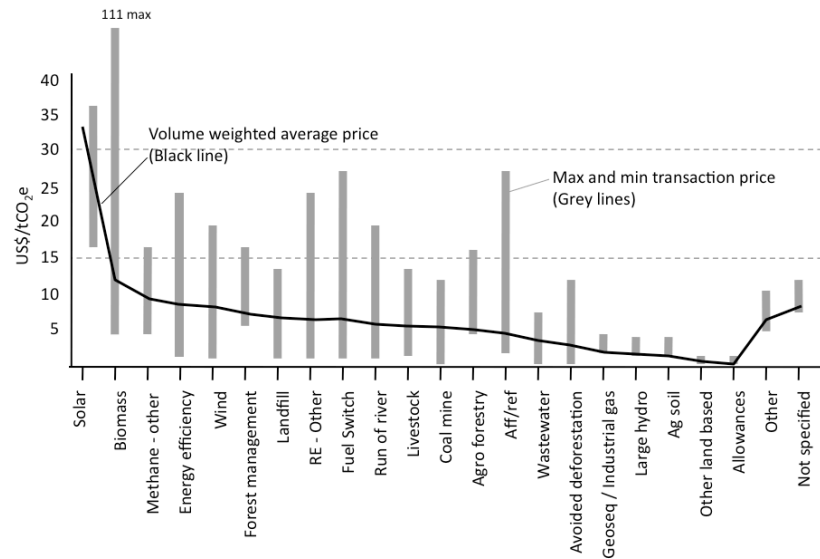
For example, during 2009 over the counter (OTC) credit prices ranged between US\$0.20 to US\$111 per tonne depending on project type (figure 12.4). Solar energy projects commanded the highest average prices (average: US\$33.8; range: US\$17–US\$36), followed by biomass energy (average: US\$12.3; range: US\$4–US\$111), methane (average: US\$9.6; range: US\$4–US\$16). Several project types showed a wide range of credit prices (eg US\$1–US\$28) with average prices hovering around the US\$6 mark.¹⁶

¹⁴ A Kossoy and P Ambrosi State and Trends of the Carbon Market 2010 (World Bank, Carbon Finance, 2010). Available at: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2010_low_res.pdf (last accessed 13 May 2011).

¹⁵ A Kossoy and P Ambrosi State and Trends of the Carbon Market 2010 (World Bank, Carbon Finance, 2010).

¹⁶ K Hamilton, M Sjardin, M Peters-Stanley and T Marcello *Building Bridges: State of the Voluntary Carbon Markets 2010* (Ecosystem Marketplace & Bloomberg New Energy Finance, 2010).

Figure 12.4 Voluntary carbon market average credit price and price range by project type, OTC 2009¹⁷



12.4 Supply and demand

To further clarify the voluntary carbon market, it is helpful to elaborate on the differences between the supply side and demand side of this market.

12.4.1 Supply

On the supply side we are talking about the creation of carbon units for sale in the voluntary carbon market. The act of creating and selling carbon units is a way to generate co-financing to enable clean(er) development projects to occur.

The purpose of voluntary carbon financing is to supply the co-financing necessary to support clean development options by enabling the cleaner option to become cost-comparable with less climate-friendly business-as-usual (BAU) activities. But rather than expecting government subsidies to give effect to these outcomes, carbon finance in the voluntary carbon market comes from the private sector.

For example, some renewable forms of electricity generation are more costly per unit energy generated than fossil fuel energy sources. Carbon financing available through the voluntary carbon market can lower the unit

¹⁷ K Hamilton, M Sjardin, M Peters-Stanley and T Marcello *Building Bridges: State of the Voluntary Carbon Markets 2010* (Ecosystem Marketplace & Bloomberg New Energy Finance, 2010).

cost of the renewable option and thereby enable it to occur. This is undertaken by means of a carbon project that would reduce or avoid fossil fuel emissions by displacing a fossil fuel.¹⁸

As mentioned above, in New Zealand, soil carbon, international aviation emissions, international marine transport, and certain forms of forest carbon management lie outside the Kyoto Protocol carbon accounting regime. Project proponents operating in these sectors (eg an airline wishing to reduce its international aviation emissions) cannot take advantage of any carbon market financial incentives under the Kyoto Protocol or domestic emissions trading scheme. But they can potentially access the voluntary carbon market as a means of co-financing climate-friendly projects and programmes.

For another example, owners of mature indigenous forest in New Zealand are from the NZ ETS because their forest was already classified as “forest land”¹⁹ as of 1 January 1990. Such forests are, however, eligible for carbon financing through the voluntary carbon market.²⁰ So instead of realising the commercial value of their asset through harvesting timber, such owners could potentially avoid timber harvesting, enhance carbon sequestration and earn an income from the creation and sale of carbon credits.²¹

In agriculture there are many soil carbon management techniques that can enhance the carbon storage in the soil and these management practices are potentially able to be co-financed through the creation and sale of voluntary carbon credits.

There are many different activity types on the supply side of the voluntary carbon market ledger but the common denominator is a need for co-financing to enable a climate-friendly initiative to take place.

Another dimension of the supply side of the voluntary carbon market is that voluntary buyers have the option to buy voluntary carbon units or compliance carbon units. This is in contrast to buyers in the compliance carbon market who have to buy compliance carbon units and where the selection of units able to be purchased for regulatory obligations is restricted to certain types of

¹⁸ Note that this example would only qualify (and make sense) for the voluntary carbon market if it was not possible to gain the economic value of carbon reductions through the compliance carbon market.

¹⁹ The MAF definition of “forest land” is land of at least 1 hectare in area, supporting at least 30% tree cover, with species capable of reaching at least 5 meters in height in situ. See www.maf.govt.nz/forestry/pfsi/pfsi-guidelines/page-02.htm (last accessed 13 May 2011). This definition is also covered in section 4(1) of the Climate Change Response Act 2002.

²⁰ International climate policy developments at the United Nations in December 2010 indicated a possible future shift in international forest carbon accounting rules that may require Kyoto countries to include forest management (of pre-1990 forests) in the compliance accounting regime. Currently this is optional under the Kyoto Protocol and New Zealand elected to not undertake this part of the Protocol (Article 3.4).

²¹ SA Weaver and T Hewitt *Voluntary Carbon Market Opportunities for Maori Owners of Indigenous Forest* (Project Overview Report V1, Carbon Partnership Ltd and Te Puni Kokiri, 2010).

compliance units. For example, the EU ETS does not allow buyers to use AAUs, RMUs, or forestry-generated CERs, but does allow EUAs and non-forestry CERs.

The choice of carbon unit to purchase in a voluntary market, however, is best guided by an understanding of the implications arising from the different kinds of units available. This relates more to the integrity of carbon-related claims (more below).

12.4.2 Demand

As noted earlier, the dynamics of supply and demand in the voluntary carbon market are quite different to those of the compliance carbon market as indicated in table 12.5.

Table 12.5 Drivers of voluntary and compliance carbon markets

Compliance Carbon Market		Voluntary Carbon Market	
Demand	Supply	Demand	Supply
Binding obligations of Points of Obligation to meet an emission reduction target or take responsibility for emissions.	Surplus allowances by other Points of Obligation that have over-complied with their regulatory obligations; or compliance-grade projects administered through the CDM or JI instruments of the Kyoto Protocol (or project based offset schemes acceptable in US compliance regimes).	Demand for carbon offsets as part of a Corporate Social Responsibility (CSR) programme such as carbon neutrality or low carbon footprinting.	Voluntary clean(er) development projects that reduce emissions from sources or enhance removals by sinks, and that need co-financing to compete with less sustainable technologies or practices.

The main driver of demand for voluntary carbon units is Corporate Social Responsibility (CSR) and green marketing. Perhaps the most visible form of climate-friendly CSR is carbon neutrality (explained further below). Carbon neutrality may be sought by a company to help it gain access to greater market share than its competitors, or because the company considers carbon neutrality to be the right thing to do given the global challenge of addressing climate change.

Green marketing is where a business may wish to sell a product or service that has certain 'green' credentials. For example, an electricity retailer may offer a green product line to discerning customers. The retailer may buy voluntary carbon units so it can claim that for every kilowatt-hour of electricity a certain volume of carbon benefits have been created (either emission reductions or removals).

12.5 Carbon commodity trading

Another aspect of the voluntary carbon market is the operation of the secondary market in voluntary carbon credits. This is where buyers of carbon

credits treat carbon like any other tradable commodity (eg where possible buying low and selling high). The secondary market enables brokerages to facilitate larger scale transactions by aggregating carbon credit portfolios and on-selling them to interested buyers. The packaging of carbon for on-sale is sometimes undertaken as a way of adding value to the carbon through aggregating certain types and vintages (year of issuance) of carbon credits. In this way carbon credit brokerages can also help to market carbon credits on behalf of sellers.

12.6 Carbon neutrality and other carbon-related claims

Carbon neutrality involves reducing to zero the net emissions inside one's project boundary (eg a business or household). Getting to zero requires three basic steps:²²

- (1) Measure: Establish a project boundary and measure the annual carbon emissions footprint within the project boundary. This measurement involves carbon accounting for three categories of emissions:
 - Scope 1: Direct greenhouse gas emissions caused by you and occurring within your project boundary.
 - Scope 2: Indirect emissions associated with the energy that you consume (where the emissions are generated outside your project boundary as is the case with electricity generation)
 - Scope 3: Indirect emissions occurring outside your project boundary and resulting from products or services that you use, but where you have no control over those emissions.
- (2) Reduce: Reduce emissions as much as possible within the project boundary (eg through behaviour change, installing clean technologies). Even with a lot of effort and expense it is common that some emissions are high on the cost curve and very difficult and/or prohibitively expensive to eliminate from within the project boundary (residual emissions). These residual emissions are measured and form the target for carbon offset purchases.
- (3) Offset: Purchase carbon offsets (carbon units), which involve causing emission reductions outside the project boundary.

²² For example, see Commerce Commission *Fair Trading Act 1986: Guidelines for Carbon Claims* (2009). Available at www.comcom.govt.nz/fair-trading-resources/ (last accessed 13 May 2011).

These offsets are now routinely required to meet independent quality assurance standards (voluntary carbon standards similar in principle to the quality assurance standards for organic foods). A key element in voluntary carbon standards is a requirement to demonstrate that the carbon emission reductions (or sink removals) would not have happened without the carbon finance associated with the sale of the carbon units. This is called “additionality”.

Step 3 is what generates demand (among non-POs) for voluntary carbon units. Another source of demand for voluntary carbon units is corporate social responsibility (CSR) aspirations without any carbon neutrality aspiration (eg voluntarily choosing to take responsibility for certain unavoidable emissions).

The motivation for CSR buyers includes maintaining or increasing market share in a customer environment where there is increasing demand for goods and services that are beneficial to society and the environment.²³ Another motivation is simply a desire to do the right thing. The location of buyers of voluntary carbon units need not be restricted to the country where the units are supplied.

12.7 Issues that arise when making carbon-related claims

One of the key legal issues that arise for organisations making any carbon-related claims is to keep within the boundaries of fair trading laws. In New Zealand, the Fair Trading Act 1988 regulates claims made in trade. People found to be making false or misleading claims in trade can be prosecuted by the Commerce Commission. In 2009 the Commerce Commission released guidelines²⁴ concerning carbon-related claims (including claims of carbon neutrality), stating what companies need to do to stay on the right side of the law.

According to the 2009 *Fair Trading Act 1986: Guidelines for Carbon Claims*, carbon claims “should clearly inform consumers about exactly what is being offset and how it is being offset”.²⁵ The relevant sections of the Fair Trading Act are ss 9–11 and 13.

²³ For example, see California Environmental Associates *Design To Win: Philanthropy's Role in the Fight Against Global Warming* (California Environmental Associates, 2007). Available at: www.ceaconsulting.com/work/case_studies.aspx?v=1&c=1&cs=29 (last accessed 13 May 2011).

²⁴ See the Commerce Commission Guidelines for Carbon Claims here: www.comcom.govt.nz/fair-trading-resources/ (last accessed 13 May 2011).

²⁵ Commerce Commission *Fair Trading Act 1986: Guidelines for Carbon Claims* (2009).

These Guidelines pay particular attention to product or service information concerning sponsorship, approvals, performance characteristics, and benefits.²⁶

- **Sponsorship:** businesses should not give the impression they have the backing of another party when they do not. The unauthorised use of a trademark or logo may breach this provision.
- **Approval:** businesses should not claim to have approval from a government agency or licensing board when no such approval has been given, where such approval has lapsed or where the approval relates to other matters.
- **Performance characteristics:** businesses should not falsely claim that their product or service has certain capabilities or effects they do not have; for example, overstating the impact in relation to a product or service of any particular offset program in place.
- **Benefits:** businesses should not claim that a product or service has carbon-related environmental benefits if these claims cannot be substantiated.

It is important for claimants to understand what carbon neutrality and other carbon-related claims mean, and to ensure that elements of the claim (eg the quality of offsets) can be substantiated. For example, it may be a breach of the Fair Trading Act to sell voluntary carbon units from a forest carbon project that had already received funding for that forest by another means (eg the Afforestation Grant Scheme). Such carbon credits would be double counted.

Key issues in carbon-claims include:

- **Double counting:** This, for example, is where a carbon credit has been sold to more than one buyer, and or where the carbon credit has been used for a carbon related claim by two claimants. Double counting of this type can be avoided if the carbon credits have been quality assured by a carbon market standard and issued through a carbon market registry. Double counting can also be where a single project gets support for the value of carbon reductions from two sources (eg from both compliance and voluntary offset mechanisms), thereby also contravening additionality rules. If a business were to purchase a carbon credit that had also been purchased by another business, only one of them can legitimately make any claim relating to the credit.
- **Additionality:** This relates to the creation of carbon credits, and means that the carbon benefits would not have happened under business-as-usual conditions. Carbon credits are additional when the creation of these credits and the finance generated from their sale causes the carbon benefits to occur. If a project could occur without the sale of carbon credits (eg a regenerating forest that is already regenerating) then the project would not be additional (more on this below). If a business were to purchase non-certified carbon credits that did not pass an additionality test, then there is a risk that they wasted their money by buying emptiness packaged as carbon, or

²⁶ Commerce Commission *Fair Trading Act 1986: Guidelines for Carbon Claims* (2009:3).

they would be exposed to potential reputational risk arising from public and/or consumer criticism of the environmental claim. Similarly, if a business were to sell non-additional carbon credits they will potentially be exposed to reputational risk following public and/or buyer scrutiny of the carbon product.

- **Forward-sold credits and non-permanence risk:** Carbon credits can be sold ex ante in a futures market where the carbon claim can be made at the present time, but where the carbon benefits associated with the claim have not yet occurred. Carbon credits are sometimes forward sold because the carbon finance generated from the sale of these credits is necessary as up-front finance to enable the carbon project to occur.

A project proponent may forward sell carbon credits so they can afford to purchase certain clean technology necessary to reduce emissions for a project management period that extends into the future. For example, a fuel swap from fossil-diesel to bio-diesel may require the establishment of an industrial process for bio-diesel production. The finance needed to build the industrial processing plant may be generated through the forward sale of the carbon benefits (carbon credits) arising from that industrial processing plant for a given period (eg 10 years).

There are enhanced risks to the buyer in forward sale agreements (e.g. potential failure to deliver carbon benefits due to unforeseen circumstances) and this normally translates into lower carbon credit prices. But the claim must still be matched to the actual carbon benefits, and so if a carbon project fails, the buyer or the seller (or both) need to take steps to address delivery failure (eg by taking out carbon insurance of some form).

The quality assurance criteria of voluntary carbon standards usually require projects to address non-permanence risk in a detailed manner, sometimes through the establishment of a "buffer". A buffer is a percentage of carbon benefits generated by a project that are not used to issue carbon credits, but can be used to replace lost carbon benefits in a situation of non-permanence. For example, a forest carbon project may be required to hold 30% of its carbon benefits in a buffer reserve. Then if a fire damages 10% of the forest carbon project, 10% of the buffer can be used to back 10% of the credits damaged. This would leave 20% of the buffer intact, but may require additional carbon project activity to regain the lost 10% of the buffer. These kinds of non-permanence risks make it more appropriate for carbon projects to operate as larger scale aggregations to distribute risk spatially and temporally.

A business that purchased forward sold carbon credits would need to consider the insurance and/or buffer arrangements established by the seller as a condition of purchase.

- **Retiring credits:** When making a carbon neutrality or other carbon-related claim the claimant needs to permanently own (and not on-sell) a volume of carbon units. For example, a carbon neutrality aspirant needs to reduce emissions and then buy offsets (carbon

credits) for residual emissions in order to get to zero. Once the offset credits have been purchased the carbon neutrality claimant needs to “kill” these credits by retiring them. This is to prevent these credits from being on-sold – and passing the carbon benefits onto the next buyer.

Imagine Sandra is a carbon neutrality aspirant. She measures and reduces her carbon footprint. She then buys a batch of carbon credits to match her residual emissions for that year. She can only claim carbon neutrality so long as she owns those credits and makes it clear to everyone that she has no intention of ever selling them again. The standard way to demonstrate that you have no intention of selling that batch of credits is to “kill” that batch of credits and send them to the “carbon credit cemetery,” which is a retirement account in a carbon registry. Sandra instructs her registry to retire her credits. She still owns them but she can never sell them.

NB: The term “retiring” is sometimes used interchangeably with ‘cancelling’ in the carbon market lexicon, but they do have slightly different meanings and contexts. The term ‘retiring’ is used in the compliance carbon market to indicate that the owner is surrendering their carbon units as a compliance obligation. In the voluntary carbon market the units are surrendered against a carbon neutrality or similar claim.

A business purchasing carbon credits for carbon neutrality purposes will need to ensure that the credits are immediately retired, and hold some form of certification demonstrating that retirement has occurred.

12.7.1 Matching emissions and offsets

As indicated above, a voluntary buyer of carbon units can choose to buy voluntary carbon units or compliance carbon units for their offsetting. It is important, however, to ensure that the emissions and offsets are appropriately matched – at least to ensure that the atmosphere is not worse off as a consequence.

The reasons behind this are complex and relate to the fact that in a country like New Zealand carbon neutrality exercises are occurring within a country covered by Kyoto compliance accounting (more on this later under “Voluntary-Compliance”). In short, emissions generated outside the compliance space need to be offset by carbon-offset projects that also take place outside the compliance space. For example, international tourists are sometimes invited to plant trees to offset their emissions from air travel. Sounds great. But when we look more closely, we will notice that:

- (a) The international aviation emissions that got them here were generated *outside the Compliance Space* (because international aviation emissions lie outside the Kyoto carbon accounting regime).
- (b) The offsetting involves planting trees and thereby creating new forests that are located *inside the Compliance Space* (covered by Article 3.3 of the Kyoto Protocol).

What is the big deal? The new forests planted by such voluntary activities will add to the forest sequestration carbon balance for New Zealand as an intergovernmental PO under the Kyoto Protocol. This additional forest carbon will be used by the government as part of its international Kyoto compliance obligation. The same forest carbon sequestration will be used by international tourists to claim that they have offset their international aviation emissions.

The important issue here is that the emissions are absolute²⁷ (because they are created outside the Kyoto carbon accounting system), whereas the offsets are relative (because they are covered by the New Zealand national carbon accounting regime). The offsetting activity (carbon sequestration under Article 3.3 of the Kyoto Protocol) will be used by the government in intergovernmental compliance carbon trading. The result: an increase in net emissions to the atmosphere.

While it could be claimed that there is no great harm in running a programme like this, there are very real questions concerning the claim that can be made from such activities like: “international tourists have offset their emissions by planting trees”. Such claims made by tourist operators or programmes linked to tourist operators will risk being penalised by the Commerce Commission under the Fair Trading Act because such claims are technically impossible.

On the other hand, if the same programme were to market itself by inviting international tourists to plant trees and help New Zealand meet its obligations under the Kyoto Protocol, or perhaps offset domestic aviation emissions (and make no claim concerning offsetting international aviation emissions) then the claim is potentially defensible on technical grounds. Moreover, if the tourists paid for conservation/reduced degradation of mature indigenous forests in New Zealand to offset their international travel emissions, this would be fully legitimate. As noted above, emissions from *outside the Compliance Space* can only be offset by voluntary offset projects also occurring *outside the Compliance Space*.

When looking into emissions and offsets *inside the Compliance Space*, things get a little more complicated. Such emissions (eg emissions from energy, transport, industrial processes, agriculture) can be legitimately offset in a number of ways by carbon credits that have passed an additionality test. These include compliance credits (eg CERs), voluntary offsets generated outside the compliance space (eg VERs, GS-VERs, VCUs), or voluntary offsets generated inside the compliance space. Each option will have different implications for the atmosphere — some better for the atmosphere than others. These issues are explored in more detail in Part 2

²⁷ The use of the terms “absolute” and “relative” here refer to the effect such reductions have on net emissions to the atmosphere. If absolute, this means there is an absolute benefit. If “relative” this means the benefit from the specific reduction in its specific location will be negated because it occurs inside a “cap and trade” jurisdiction so will be offset elsewhere in the world by a reduction that does not need to be made. The effect on the atmosphere is therefore “net-zero”.

12.7.2 Demand drivers other than carbon neutrality

Carbon neutrality is only one driver of demand in the voluntary carbon market. There are other motivations to buy carbon credits including:

- offsetting particular emission types (eg aviation emissions);
- taking responsibility for a certain proportion of one's emissions;
- making a "low carbon" claim of some form for a product or service;
- green marketing and branding (linking particular product or service lines with climate change mitigation projects);
- philanthropy; and
- Corporate Social Responsibility by association with climate change projects.

Some buyers will undertake activity in the voluntary space without making or publicising any associated carbon-related claim about their products or services. For example, some buyers simply want to take responsibility for some or all of their emissions out of a desire to contribute to climate change mitigation. This then leads to the issue of quality assurance for the voluntary carbon market and the need to manage the claims of both buyers and sellers of carbon. [move para into next section?] I prefer to leave it in this section as a segue to the next section.

12.8 Quality assurance of voluntary carbon credits

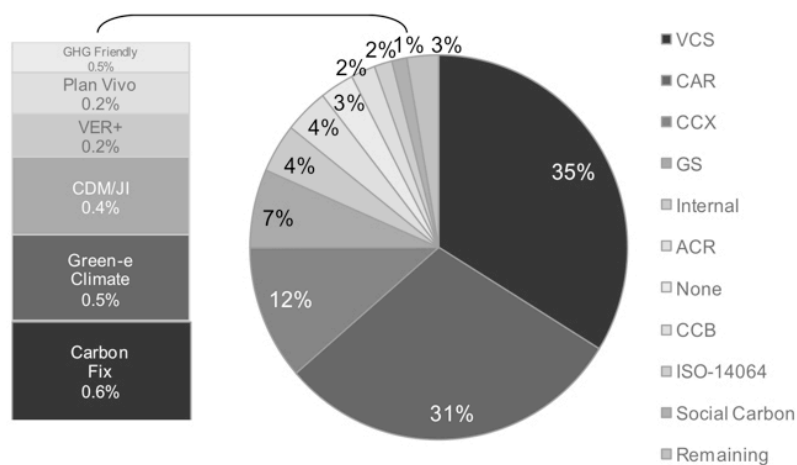
Compliance quality assurance is operated through the Kyoto Protocol and through domestic government monitoring, reporting and verification (MRV) instruments. These are evident in the NZ ETS for example, in the form of the reporting requirements imposed on domestic POs by the government. The voluntary carbon market is predominantly unregulated and therefore, any quality assurance is organised by voluntary carbon market standards (figure 12.5) much the same as in other dimensions of voluntary industry standards (eg through the International Standards Organisation (ISO)). Without quality assurance the voluntary carbon market will lack integrity, buyers will lose confidence in carbon products and sellers will be incapable of selling carbon at prices sufficient to provide the 'tipping point' finance for a project.

Like any business proposition the core issue is whether the product is of sufficient quality to be acceptable to the buyer, and whether the value obtained from selling the product is greater than the cost of generating it. Both of these issues have a close connection with quality assurance processes in the voluntary carbon market.

Buyers in the voluntary carbon market are increasingly demanding carbon units that are subjected to a third party quality assurance process. This has arisen partly from the bad press that the voluntary carbon market generated around 2005 and 2006 when it was revealed that several projects were not

delivering the promises they claimed. As a consequence, 2007 saw a rapid increase in use of voluntary carbon market standards.²⁸

Figure 12.5 Third party standard utilisation, OTC 2009²⁹



Key: VCS = Verified Carbon Standard GS = Gold Standard
 CAR = Climate Action Reserve ACR = American Carbon Registry
 CCX = Chicago Climate Exchange CCB = Climate, Community and Biodiversity Standard

These standards operate much like any other voluntary performance standard such as the ISO standards. In the case of the voluntary carbon market, the standards are often modelled on the project-based emissions trading mechanisms in the Kyoto Protocol — Joint Implementation (JI) and the Clean Development Mechanism (CDM).

Many of these standards have also tended to follow the methodological developments in the CDM, the IPCC 2003 Good Practice Guidance for Land Use, Land-Use Change, and Forestry (LULUCF), and the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

The key quality assurance and eligibility criteria for voluntary carbon market projects require that:

- project type falls within an eligible category of project types supported by the standard in question;
- the project follows the project cycle for that standard; and

²⁸ K Hamilton, M Sjardin, T Marcello, and G Xu *Forging a Frontier: State of the voluntary carbon markets 2008* (Ecosystems Marketplace and New Carbon Finance, 2008). Available at: www.carboncatalog.org/blog/2008/05/13/state-of-voluntary-carbon-markets-2008/ (last accessed 13 May 2011).

²⁹ K Hamilton, M Sjardin, M Peters-Stanley and T Marcello *Building Bridges: State of the Voluntary Carbon Markets 2010* (Ecosystem Marketplace & Bloomberg New Energy Finance, 2010).

- the emission reductions (reducing source) or removals (enhancing sinks) must be measurable, verifiable, and additional.

12.8.1 Matching Project Type And Standard

When undertaking a voluntary carbon project it is important to decide on an appropriate carbon market standard. Some project proponents elect to bring a project to market without a standard (self-certified) but such projects commonly find difficulty selling carbon units, getting low prices per tonne of CO₂, and buyers of such units are exposed to criticism by watchdogs and competitors given that such carbon has not been third party quality assured.

Voluntary carbon market standards provide three key project development components:

- (a) methodological guidelines for the project;
- (b) a basis for an independent third party audit of the project; and
- (c) some standards issue carbon units to the project (ie carbon credits are awarded that can then be sold. These may be Verified Emission Reductions (VERs) or other more specific units aligned with a particular standard (eg VCU from the Verified Carbon Standard).

There are currently several different voluntary carbon market standards available³⁰ including:

- American Carbon Registry Standard;
- Climate Action Reserve Protocols;
- The CarbonFix Standard;
- Clean Development Mechanism;
- Chicago Climate Exchange Offsets Program;
- Climate, Community, and Biodiversity Standard;
- EPA Climate Leaders Offset Guidance;
- Greenhouse Gas Services Standard;
- Gold Standard;
- Australian National Carbon Offset Standard;
- ISO 14064-2 Standard;
- Plan Vivo;
- Social Carbon;
- TUV NORD Climate Change Standard;
- VER+ Standard;
- Verified Carbon Standard³¹; and
- Supplier specific standards.

Most voluntary carbon standards focus on the carbon aspects of a carbon project, whereas some standards specialise in certain co-benefits associated with a carbon project. For example, the Climate Community and Biodiversity

³⁰ K Hamilton, M Sjardin, M Peters-Stanley and T Marcello *Building Bridges: State of the Voluntary Carbon Markets 2010* (Ecosystem Marketplace & Bloomberg New Energy Finance, 2010).

³¹ The Voluntary Carbon Standard (VCS) changed its name to the “Verified Carbon Standard” in 2011.

Standard (CCB) specialises in providing quality assurance for biodiversity and social co-benefits of carbon projects involving natural forest (CCBA 2008). Here the carbon component of the project will normally be certified under a carbon standard (eg the Verified Carbon Standard V3.0 2011 or ISO 14064-2:2006), and the co-benefits certified under the CCB.

12.8.2 Carbon project cycle

Each standard will come with project eligibility criteria and detailed methodological guidance. The role of the project proponent is to develop the Project Description Documentation (PDD) using the guidance criteria provided by that particular standard. The process commonly follows a sequence similar to that required by the Verified Carbon Standard³².

Table 12.6 Typical carbon project cycle

Typical Carbon Project Cycle	
Task	Description
1. Project Idea Note (PIN):	Scoping document that identifies the project boundary, the project type, the standard that will be used (including eligibility statement), and an estimate of potential carbon units to be generated by the project should it be certified.
2. Project Description Documentation (PDD):	Project proponent prepares PDD using relevant methodological guidance provided by the relevant standard. The cost of this exercise is dependent on strategic decisions of the project proponent together with the quality assurance requirements.
3. Validation:	PDD audited and validated by an auditor accredited by the relevant standard (auditor appointed by project proponent). The auditor assesses claim against the standard and produces a validation report.
4. Registration:	Project proponent submits documentation to the Registry operator of the given standard.
5. Certification:	Registry operator checks documentation and submits it to the Project Database of the standard.
6. Registry Check:	Project Database checks that project not previously registered and issues Carbon Credit serial numbers. Registry operator for particular standard requests and receives a Registration Levy from the project proponent.
7. Issuance:	Registry operator places documents into custodial service and issues carbon credits into the account of the project proponent.
8. Monitoring:	Project monitoring and associated verification (audit of monitoring) according to an approved monitoring plan. Some standards will only issue carbon credits ex post (i.e. after the emission reductions or sequestration has occurred). The issuance of ex post credits usually occurs following the verification of a monitoring report.

The core of a voluntary carbon project is to:

- (a) establish an evidence-based (and defensible) *Baseline Scenario* = carbon balance within the project boundary in the absence of a carbon project;

³² Verified Carbon Standard V3.0 2011. Available at: www.v-c-s.org/VCSv3.html

- (b) establish an evidence-based (and defensible) *Project Scenario* = carbon balance within the project boundary resulting from the carbon project; and
- (c) calculate the *Net Carbon Benefits* of the project = quantitative difference in carbon balance between the Baseline Scenario and the Project Scenario.

The Baseline Scenario is the business-as-usual situation projected into the future project management period, based on past trends and contemporary drivers of carbon emissions and/or carbon stock change. The Project Scenario is what will happen to the carbon balance within the project boundary as a result of the implementation of the carbon project.

12.8.3 Project Description Documentation (PDD)

The above information is contained in the Project Description Documentation (PDD). The PDD encompasses a detailed evidence-based carbon accounting exercise that calculates the Net Carbon Benefits of the project, which in turn form the basis of the carbon credits created by the project.

A PDD will vary according to standard and activity type, but will include something similar to table 12.7.

Table 12.7 Overview of Project Description Documentation

PDD Section	Description
Eligibility	This clarifies the eligibility of the project in terms of the chosen carbon standard and its eligibility criteria and eligible activity types. This includes the carbon accounting methodology to be used in the project, the proof of carbon tenure, and legal instruments to be used to generate the carbon benefits.
Project boundaries and scope	This determines the boundaries of the project in space, time, emission activity types, greenhouse gases, carbon pools.
Baseline selection, additionality and baseline modelling	This identifies the baseline activity type (business-as-usual activity), assesses the credibility of the baseline activity, and tests the commercial viability of the baseline scenario.
Baseline scenario net greenhouse gas emissions	This is a detailed carbon accounting exercise to calculate the net carbon balance arising from the Baseline Scenario.
Project scenario net greenhouse gas emissions	This is a detailed carbon accounting exercise to calculate the net carbon balance arising from the Project Scenario.
Net carbon benefits	Net carbon benefits are the quantitative difference between the Baseline Scenario net greenhouse gas emissions and the Project Scenario net greenhouse gas emissions.
Leakage assessment	This assesses the likelihood that the Project Scenario will cause the displacement of emissions to a locality outside the project boundary (e.g. and cause only a shifting of emissions rather than a net reduction in emissions).
Non-permanence risk and buffer determination	This assesses the risks of project failure and determines the scale of internal project insurance required to support the project in terms of guaranteeing permanent carbon benefits from the Project Scenario. The buffer is a proportion of the carbon benefits of the project that are excluded from the pool of carbon credits claimed by the project.
Project carbon units	This is the final volume of carbon credits claimed by the project and is calculated by subtracting leakage factors, and buffer volumes from the net carbon benefits.

Analysis of ancillary benefits	This is an assessment of any co-benefits associated with the Project Scenario. Such co-benefits for a forest project may include biological diversity, community, and cultural benefits generated or safeguarded by the project. Sometimes these co-benefits are quality assured separately to the carbon component of a project, and can result in commanding higher carbon prices per carbon unit compared with carbon not linked to such co-benefits.
Monitoring plan	This is a detailed carbon accounting plan for monitoring the project carbon benefits through the duration of the project period. In <i>ex post</i> carbon projects, carbon credits are issued only after the carbon benefits have been delivered after the fact. The delivery of these carbon benefits is verified by an audit of the monitoring regime by a third party accredited to the particular voluntary carbon standard used for the project.

As can be seen from the overview of the PDD content, a voluntary carbon project can be an onerous undertaking. But without this due diligence (there is a lot more detail than the summary provide here) the units that find their way into the voluntary carbon market would have no environmental integrity. The commercial reality of voluntary carbon projects, however, is that they can be costly to undertake due to the degree of expert analysis required, together with transaction costs associated with quality assurance.

12.9 Additionality

The purpose of carbon credits is to enable a carbon buyer to cause new emission reductions/ removals by purchasing carbon credits. This means that the emission reductions or sink removals in the carbon project would not have happened anyway (ie they are additional to business-as-usual).

There are two broad types of carbon project additionality:

- (a) Project additionality (the carbon benefits would not have occurred without the project)
- (b) Financial additionality (the project would not have occurred without the sale of carbon credits as necessary co-financing)

Commonly, voluntary carbon market standards like the VCS require both types of additionality. This will give the buyer more confidence that it was the act of purchasing carbon credits that caused these particular outcomes to occur.

The Verified Carbon Standard has three different additionality test options³³:

- project test;
- performance test; and
- technology test.

³³ Voluntary Carbon Standard 2008a. Voluntary Carbon Standard 2007.1. Note that this document was published when the Verified Carbon Standard operated under the name "Voluntary Carbon Standard."

The requirements for the Project Test (Box 1) provide an indication of the level of detail required in additionality analysis for project proponents.

Box 1. Verified Carbon Standard Project Test for Additionality

Step I: Regulatory surplus

The project shall not be mandated by any enforced law, statute or other regulatory framework.

Step II: Implementation barriers

The project shall face one (or more) distinct barrier(s) compared with barriers faced by alternative projects.

- Investment Barrier – Project faces capital or investment return constraints that can be overcome by the additional revenues associated with the generation of VCUs.
- Technological Barriers – Project faces technology-related barriers to its implementation.
- Institutional barriers – Project faces financial, organizational, cultural or social barriers that the VER revenue stream can help overcome.

Step III: Common practice

- Project type shall not be common practice in sector/region, compared with projects that have received no carbon finance.
- If it is common practice, the project proponents shall identify barriers faced compared with existing projects.
- Demonstration that the project is not common practice shall be based on guidance in the GHG Protocol for Project Accounting, Chapter 7.

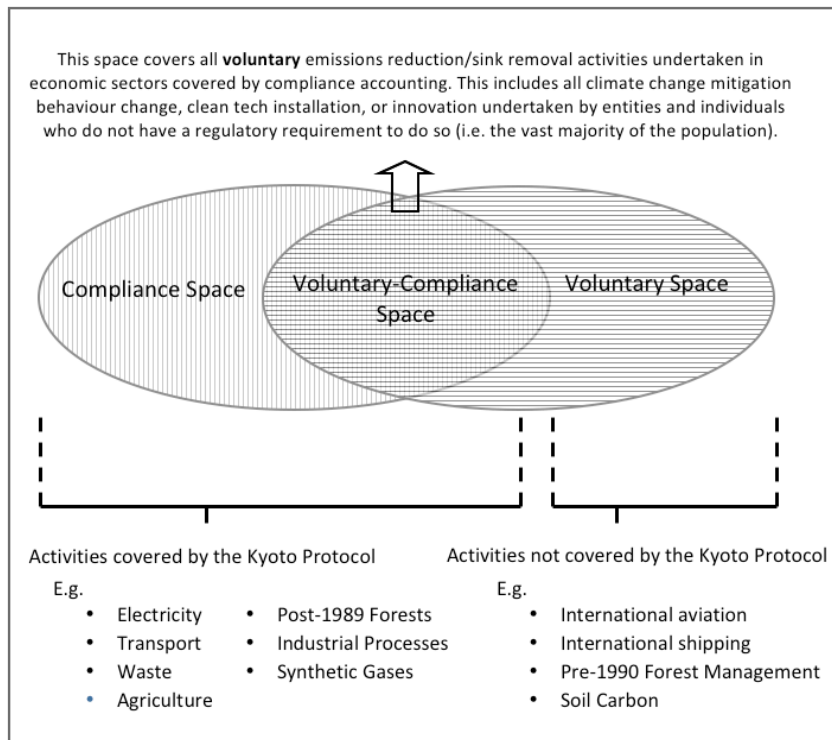
PART 2: VOLUNTARY MARKET AS A COMPLEMENTARY MEASURE TO AN ETS OR TAX

12.10 The Voluntary-Compliance Space

When earlier describing the compliance and voluntary spaces, a third space was mentioned called the “Voluntary-Compliance Space”. This relates to voluntary activities undertaken inside the Compliance Space by entities that are not Points of Obligation (PO) in the compliance system.³⁴ This point is further elaborated in figure 12.6.

³⁴ A more detailed analysis of the potential for emissions trading in Voluntary-Compliance Space can be found in a series of reports co-authored by the author: M Ward and SA Weaver *The Leader’s Guide to International Emissions Trading and Carbon Markets* (GtripleC, Carbon Partnership, and the ⁰Climate Group, 2008); M Ward and SA Weaver *Scaling up voluntary mitigation activities* (GtripleC and Carbon Partnership Discussion Paper, 2008); M Ward and SA Weaver *The meaning of carbon neutrality inside jurisdictions with caps* (GtripleC and Carbon Partnership Discussion Paper, 2008); M Ward and SA Weaver *Voluntary inside compliance: Counting and credibility* (GtripleC and Carbon Partnership Discussion Paper, 2008); M Ward and SA Weaver *Voluntary market activities: Is there a role in Kyoto countries?* (GtripleC and Carbon Partnership Discussion Paper, 2008). Papers available at www.gtriplec.co.nz/papers-and-articles/carbon-neutrality/ (last accessed 13 May 2011).

Figure 12.6 The Voluntary-Compliance Space



The importance of this middle Voluntary-Compliance Space is worth considering in detail. As noted earlier, domestic compliance emissions trading schemes typically only engage large emission sources or capture entities at the top of the energy supply chain. These ETS models mean that the vast majority of individuals and organisations are not POs in either intergovernmental emissions trading (only countries are POs) or domestic emissions trading schemes.

For example, the NZ ETS has only about 200 companies that are POs (not counting forest owners who opt into the scheme principally as sellers of forestry credits). In practice this means that the only way that the majority of entities in our domestic economy can participate in the NZ ETS (apart from forest owners) is to pay higher energy prices in a similar manner to a tax.

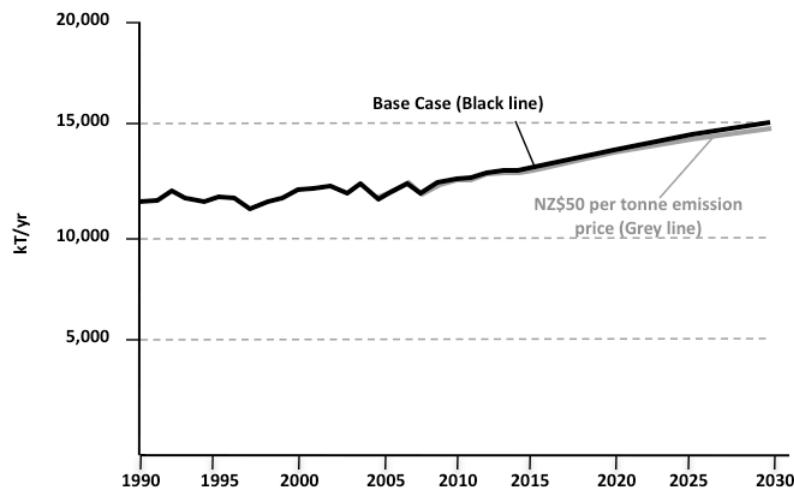
12.10.1 Limitations of a carbon price signal

From a public policy point of view (given our international obligations to meet a binding Kyoto emissions reduction target), we might wonder whether the price signal arising from the NZ ETS (or a carbon tax) is sufficient to change behaviour and thereby reduce our collective national emissions. This is

particularly relevant to the relatively price-inelastic³⁵ energy sector where a large proportion of our emissions are coming from.

The Ministry for Economic Development undertook a study in 2007 that looked at the likely effect of different carbon prices on energy sector emissions (figure 12.7).

Figure 12.7 Effects of carbon price on non-electricity stationary energy emissions³⁶



So from a policy point of view, it is clear that in some sectors at least, a carbon price of around NZ\$20-30 a tonne CO₂e is unlikely to bring about much in the way of emission reductions. In these situations, complementary measures would appear to be warranted.

From a business opportunity point of view one might ask the question of whether carbon finance could be used to support voluntary emissions reduction activities as a business prospect. Answer: You would need to use an instrument other than compliance emissions trading if you are not a Point of Obligation (ie the vast majority of businesses).

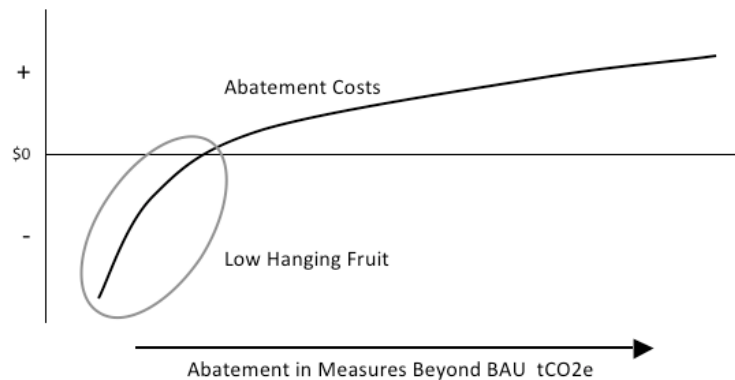
³⁵ Energy demand tends to be price inelastic because energy is such a fundamental resource for households and businesses. When the price goes up, consumers tend to simply pay more for their energy rather than changing behavior (to use less). If energy demand was price-elastic, relatively small increases in price would influence consumer behavior.

³⁶ MED 2007. Benefit-Cost Analysis of the New Zealand Energy Strategy, Ministry for Economic Development. United Nations 1998. Kyoto Protocol. Available at: http://unfccc.int/kyoto_protocol/items/2830.php (last accessed 13 May 2011).

12.12 Facilitating clean technology uptake

There are many opportunities to voluntarily reduce emissions at low or even negative cost. This is because many emission reduction activities exist below zero on the cost curve (see figure 12.8). Even though these activities are low or negative cost, in practice many of them are not widely adopted because of a range of non-price barriers to uptake. An example might be a form of low-cost clean technology currently available off the shelf, but where the return on investment is longer than 2-3 years, or where potential consumers are not aware, or cannot be bothered, do not know how, or do not have time to undertake a clean technology project in their own business or household. In fact, all values and economics considered, many of these supposed low cost options may not be low cost at all in the absence of some aggregation programme.

Figure 12.8 Marginal abatement cost curve model



One way to overcome these non-price and price barriers, therefore, is to generate economies of scale through aggregation, where the logistics of a clean technology installation programme is undertaken by an aggregator entrepreneur. The entrepreneur can command a supplier discount and develop the know-how to execute a project or programme efficiently. The entrepreneur identifies suitable clean technology (i.e. low on the cost curve), packages it as a programme, and offers it to a collection of businesses and/or households.

Yet the business model for this clean technology service programme may still fail to win investment support because the unit price of the clean technology may still be higher than the unit price of more carbon intensive business-as-usual technologies. This difference in unit cost partly relates to the way that carbon intensive technologies externalise many of their costs onto society and the environment, whereas clean technology internalises these costs (by incorporating solutions to prevent them), raising the retail price.

Without a business model that gets the aggregation activity over the line, the project or programme will not proceed. But what if the same entrepreneur were able to:

- (a) measure the emission reductions arising from the proposed programme over the life of the technology to be installed;
- (b) turn those emission reductions into carbon credits; and
- (c) sell the carbon credits in a voluntary carbon market to raise necessary co-finance to push the business model over the line.

This is an example of a market instrument used by spectators in our rugby metaphor, where these spectators help the players (POs) by supplying performance-enhancing supplements from the sidelines.

12.12.1 Voluntary carbon market in New Zealand agriculture?

An example of a voluntary carbon project in the agricultural sector might be a scheme to roll out biogas energy generation dairy farms. Such a project has the potential to transform a current liability (dairy shed effluent) into an asset (treating the effluent on-farm in a way that generates energy to drive an irrigation system). Currently the costs of such clean technology, the new entrant risks, and scale and the timing of the return on investment pose a barrier to uptake, even though this is a well-proven technology in other countries.

Enter an agricultural carbon market entrepreneur who enlists a collection of farmers into a scheme that would install biogas systems on participating farms. The result: the effluent is turned into sterile compost for use on the farm as a fertiliser, the treatment process produces methane (biogas) which is used to drive irrigation pumps, thereby reducing electricity bills. Win-win.

The carbon market entrepreneur then calculates the total carbon benefits from avoiding methane emissions from business-as-usual effluent treatment, and the avoided emissions from a reduction in electricity consumption. She or he turns these carbon benefits into carbon credits for sale to CSR buyers who want to be seen to be helping agricultural clean tech uptake. The funds raised from the sale of carbon credits are used to co-finance the scheme – helping to reduce unit costs of the kit, and helping to pay the entrepreneur’s salary. Win-win-win.

The government looks over its shoulder at this activity, and notices that it is helping New Zealand Inc. to meet its Kyoto emission reduction target, as well as helping our international trading reputation. Win-win-win-win.

12.13 The double counting conundrum

But there is a problem. When trying to certify carbon credits with an international voluntary carbon market standard, the entrepreneur (carbon project proponent) is informed by all the international voluntary carbon market standards that they will not issue carbon credits in a sector contained within the Compliance Space (eg energy) unless the government cancels an equivalent number of national compliance units (eg clause 3.12.2 Verified Carbon Standard 2011 v3.0). This requirement (sometimes called the “killer-

clause” in the voluntary carbon market) has prevented any rapid growth of the voluntary carbon market in Kyoto countries and as a consequence hindered spectators from helping the players. One main reason for this is that governments have routinely refused to cancel compliance units in these situations. Unless governments cancel compliance units — or the project entrepreneur buys compliance units and cancels them) — the projects supplying the voluntary credits to voluntary buyers must be in a country outside the Compliance Space.

In our rugby setting, spectators who want to help enhance the performance of the *rugby union* players³⁷ (and thereby help New Zealand Inc.) may choose to lower their own emissions footprint (this enhances the performance of the players) and then buy carbon credits to take responsibility for the rest of their emissions footprint (eg to get to a zero net footprint). If they could buy carbon credits that were created by emission reduction projects in the energy sector in New Zealand, then this would also enhance the performance of our rugby union players, because those credits would be created by energy sector emission reduction projects in New Zealand. The killer clause forces spectators to get to zero net emissions by purchasing carbon credits from the *rugby league* tournament. Assisting *rugby league* players by purchasing carbon credits from the international voluntary carbon market will not assist New Zealand Inc. in meeting its Kyoto target. Instead it will assist the atmosphere directly (outside the Kyoto carbon accounting regime) and/or assist clean tech uptake in a non-Kyoto country (eg a developing country) where these credits have been created.

But it is conceivable (and backed up by market research) that some potential New Zealand carbon buyers want to have the option to buy credits that will facilitate energy sector emissions reductions in New Zealand (and associated clean technology development), rather than say, being forced to help clean technology uptake in China (which is where a lot of voluntary carbon credits are currently sourced).

What lies behind the killer-clause is the fact that (in a Kyoto country) voluntary carbon emission reductions (or sink removals) occurring in the Compliance Space would be counted by:

- the voluntary carbon market; *and*
- the government in its national compliance carbon accounting regime.

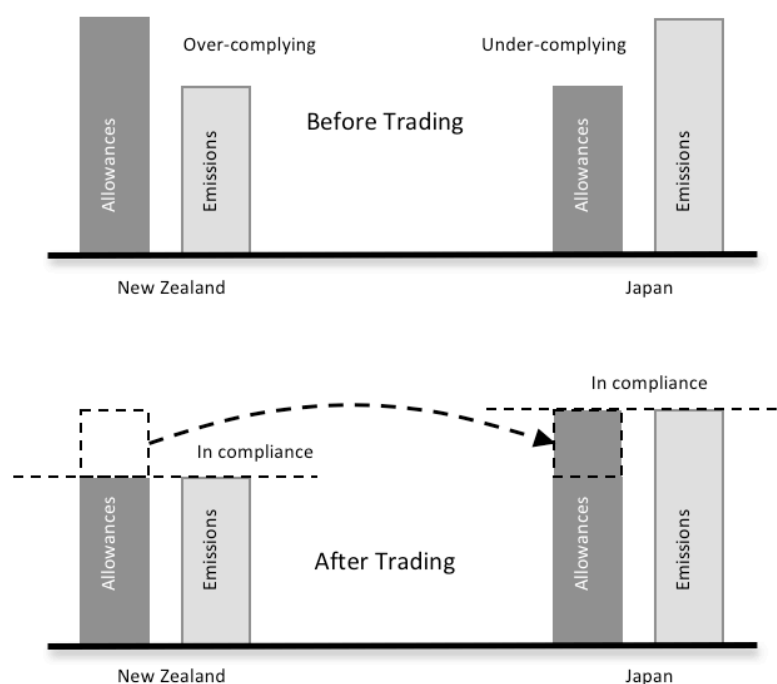
³⁷ For the purposes of this rugby metaphor, *rugby union* (ie the type of rugby that the All Blacks play) represents the game played by Points of Obligation in the Compliance Space. Assisting *rugby union* players therefore helps New Zealand Inc. to meet its international compliance obligation under the Kyoto Protocol. *Rugby league* represents the international voluntary carbon market, which lies outside the Compliance Space, *and* outside the Voluntary-Compliance Space. Assisting *rugby league* players by purchasing carbon credits from the international voluntary carbon market will not assist New Zealand Inc. in meeting its Kyoto target. Instead it will assist the atmosphere directly and/or assist clean tech uptake in a non-Kyoto country (eg a developing country) where these credits have been created.

This “double benefit” was perceived by early regulatory thinkers (and some watchdog groups) to be an example³⁸ of “double counting” that was illegitimate and needed to be stopped — indeed killed. And they did.

More recently, the logic behind this perception has been questioned and a broader perspective developed about what is double counting (bad) and what is double benefitting (good).

If voluntary carbon market transactions occur for actions that are located inside sectors covered by Kyoto compliance accounting (eg clean technology energy efficiency) they will contribute to a reduction of New Zealand’s national Kyoto liability, and will therefore be counted by the government as part of the national carbon accounting process under the Kyoto Protocol. It is true therefore, that the same voluntary action to reduce emissions will be counted by the voluntary carbon market and the intergovernmental Kyoto market. But is this illegitimate? Lets take a closer look by first considering the way that international (intergovernmental) emissions trading works under the Kyoto Protocol.

Figure 12.9 International emissions trading: allowances and emissions



³⁸ These views were/are held against a backdrop of a general list of concerns about some “carbon cowboy” practices in the early days of the voluntary market.

International compliance emissions trading between countries under the Kyoto protocol creates a means for a collection of countries to meet a collective emission reduction goal (cap) at least cost to the community of participants (through carbon trading³⁹). This means that voluntary emission reductions that we make as non-points of obligation will contribute to the national emission reduction target. As such, any extra effort to reduce emissions in New Zealand (eg over-complying with our Kyoto target) will enable New Zealand to sell surplus Assigned Amount Units (AAUs) to another country that has under complied with their Kyoto target (figure 12.9). The net result is that there is no additional benefit to the atmosphere apart from meeting the national target and the global cap at lower cost. This is true for all emission reduction activities in sectors covered by Kyoto accounting, irrespective of whether they are actions caused by a voluntary carbon market or by other drivers (e.g. subsidies, regulation, philanthropy).

Accordingly, the notion that *voluntary carbon trading* inside the Compliance Space is illegitimate, on the basis that there is no additional benefit to the atmosphere, is as spurious as claiming that *any voluntary action* (including non-traded ones) are not worth undertaking for the same reason.

It soon becomes clear how important the global collective cap is, and why international negotiations to set that cap are fundamental, because meeting this cap is the end game of both compliance and voluntary activities in Kyoto countries.⁴⁰

One might then ask “Is there any value in voluntary emission reductions at all within the Compliance Space (eg riding to work instead of driving)?” Answer: yes. Because voluntary actions help the country meet its compliance target at lower cost than otherwise. Such voluntary actions help to move a country further along the transition to a low carbon and more energy efficient economy.

A voluntary carbon market instrument will help to cause more of these voluntary activities to occur than would otherwise be the case. This is because a voluntary carbon market will provide a source of finance for voluntary actions that is not currently available. Furthermore, this finance will not be supplied by the taxpayer, thereby freeing up public funds for other actions not able to be financed through a market instrument (eg targeted emission reduction research in agriculture, and strategic shifts in electricity generation infrastructure).

Any increase in the rate of clean technology uptake and consequent reduction in emissions will signal to policymakers and international

³⁹ Carbon trading enables a least-cost economic environment to ensue because it allows Points of Obligation (POs) to (a) calculate their marginal abatement costs, and then (b) reduce emissions in-house where they can at low cost (ie lower than the international carbon price), and then (c) buy carbon units (ie at the carbon price) to meet the remainder of their Kyoto target (rather than pay for progressively more expensive abatement in-house). Explaining this in full is beyond the scope of this chapter, but is a pivotal concept in understanding the economics of emissions trading.

⁴⁰ The exception to this is voluntary activities undertaken in sectors not covered by Kyoto accounting (eg pre-1990 forest management, international aviation, international shipping).

negotiators that they can adopt more stringent future emission reduction targets, with confidence that the targets will not be economically damaging. In this way voluntary projects will contribute to lowering the global cap on emissions over time.

The key value of a voluntary carbon market instrument is its ability to assist the scaling up of voluntary climate change mitigation actions. This is because a voluntary market instrument operating inside the Compliance Space would provide a mechanism for aggregator entrepreneurs to link Corporate Social Responsibility (CSR) buyers with climate-friendly outcomes (voluntary carbon projects) at a larger scale than without this aggregation activity. The aggregation activity helps to lower transaction costs associated with clean-tech initiatives, and can also help overcome non-price barriers to clean-tech uptake.

Furthermore, the double benefitting of voluntary emission reduction actions by the voluntary and compliance markets does not necessarily pose a problem for environmental integrity or “double dipping” (subject to important market rules) for the following reasons:

- (a) All voluntary actions to reduce Kyoto compliance grade emissions are counted by governments and are therefore subject to intergovernmental Kyoto compliance carbon trading.
- (b) Voluntary actions to reduce Kyoto compliance grade emissions are universally encouraged by those who recognize the need to reduce emissions globally.
- (c) Voluntary carbon market transactions inside sectors covered by compliance accounting are simply a mechanism to scale-up the occurrence of these voluntary actions.
- (d) The voluntary carbon units are not and will never be fungible (interchangeable) with Kyoto compliance carbon units (nationally or internationally).
- (e) The voluntary actions caused by the sale of voluntary carbon units would not have occurred without the carbon finance associated with the sale of those carbon units (i.e. the generation of voluntary carbon units need to pass a financial ‘additionality’ test).
- (f) The rules of the voluntary carbon market need to make it clear to buyers and sellers of voluntary carbon units that the actions caused by the sale of these units will be counted by the government, and that the purchase of these units is a way to assist the nation achieve its Kyoto compliance obligation at lower cost (rather than causing outcomes that are additional to the global Kyoto cap).

This analysis has been shared with the Verified Carbon Standard to the effect that the CEO has indicated openness to offering a new unit to enable voluntary-compliance emissions trading.⁴¹ In his words:

This is something that we have considered in the past, and while we currently require all VCUs in countries with binding limits on GHG emissions to be backed up by a cancelled allowance, allowing the issuance of carbon units without such a

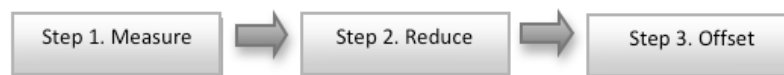
⁴¹ David Antonioli, CEO Voluntary Carbon Standard Association (personal communication, September 2010).

corresponding cancellation could result in important contributions to national targets. The VCS Program documentation is out for public comment and we welcome input on this topic.

12.14 Re-examining carbon neutrality

“Carbon neutrality” is commonly defined as net zero greenhouse gas emissions inside a defined project boundary for direct and indirect emissions.

As indicated above,⁴² the methodology of carbon neutrality programmes involves a three-step process:



12.14.1 Step 2 anomaly

The existence of the Kyoto Protocol as an intergovernmental cap-and-trade emissions trading system complicates the definition of carbon neutrality. This is because the emission reductions involved in Step 2 above encompass a voluntary emission reduction that helps the government meet its Kyoto compliance obligations, which will free up AAUs (as discussed above). This is not an artefact of carbon neutrality or the voluntary carbon market, but an artefact of all voluntary emission reductions interacting with the architecture of the Kyoto Protocol (including choosing to ride a bicycle to work instead of driving). This is also true for all Kyoto countries irrespective of whether they have a domestic emissions trading scheme in operation.

Carbon neutrality, therefore, is not possible in an absolute sense in a Kyoto country if the carbon neutrality programme requires businesses to reduce their footprint (all carbon neutrality programmes require Step 2). The only way carbon neutrality is possible in an absolute sense (in a Kyoto country) is if the carbon neutrality programme eliminated all voluntary emission reductions inside a business (delete Step 2) and then require the business to buy carbon offsets to match all their emissions footprint, *and* require the carbon offset units to be generated in a country or sector not covered by Kyoto accounting. But the point of carbon neutrality exercises is to reduce emissions by the participant – not just to buy offsets.⁴³

On the other hand, if exactly the same three-step carbon neutrality exercise (measure, reduce, offset) were undertaken in a developing country (which does not have a Kyoto target) then the emission reductions will not free up government emission allowances, and those allowances will not be traded internationally. Accordingly, carbon neutrality is possible in an absolute sense

⁴² See section 12.6.

⁴³ Even though, perversely, buying offsets without reducing emissions in-house actually has higher overall environmental integrity in Kyoto countries, so long as the offsets are quality assured and come from outside the Compliance Space.

in a developing country (and in those parts and sectors of the United States currently without compliance emissions trading schemes).

12.14.2 Step 3 issues

To complicate things further, the origin of offsets purchased in Step 3 above of a carbon neutrality programme will influence the extent to which the carbon neutrality is absolute or relative. For a New Zealand carbon neutrality buyer, the offsets could include international compliance units, domestic compliance units, voluntary units, and (potentially) voluntary-compliance units⁴⁴. The choice of offsets will affect the environmental outcome of the carbon neutrality exercise.

In discussions with the Verified Carbon Standard, they recognized the potential legitimacy of voluntary-compliance carbon trading, but pointed out that this was partly dependent on the claim made as a consequence of purchasing one of their units.⁴⁵ Because they have no way of controlling that claim, they have decided (in the mean time) to not issue voluntary-compliance units at all, unless a government cancels an equivalent number of Kyoto compliance units (as mentioned above in clause 3.12.2 of the Verified Carbon Standard 2011 V3.0).

One way to address this is to link the sale of units to the claim that can be made once they are purchased through a form of brand protection. This could be achieved either by:

- (a) declaring that carbon neutrality claims are out of order in the Voluntary-Compliance Space; or
- (b) requiring that the carbon neutrality claim specifies very clearly the kind of carbon neutrality it confers; and
- (c) disallowing on-selling of the units (ie voluntary-compliance credits can only be sold once, and when purchased are automatically retired in a designated registry where the claim and the unit are linked and tracked).

The range of carbon neutrality that is possible in a Kyoto country like New Zealand include the following scenarios (Table 8):

Table 12.8 Carbon neutrality types in New Zealand

CN Type	Emission Reductions		Offsets	
	Location	Effect	Location	Effect
1	Generated inside the Kyoto accounting space	No change in Kyoto cap: no net gain for atmosphere	International compliance units developing country (cancelled CERs)	Kyoto cap not reduced by offset but less CERs in circulation (and potentially absolute net effect on atmosphere)

⁴⁴ “Voluntary-compliance units” are those that might be offered in a voluntary carbon market operating in the Voluntary-Compliance Space.

⁴⁵ Jerry Seager, Voluntary Carbon Standard Association (personal communication, [July 2010]).

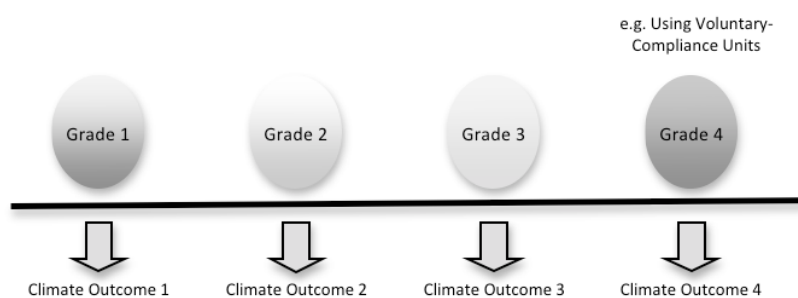
2	Generated inside the Kyoto accounting space	No change in Kyoto cap: no net gain for atmosphere	International compliance units – developed country (cancelled NZUs – and underlying NZ AAUs)	Kyoto cap reduced by offset purchase and cancellation (absolute net effect on atmosphere)
3	Generated inside the Kyoto accounting space	No change in Kyoto cap: no net gain for atmosphere	Voluntary units generated outside compliance accounting (e.g. Gold Standard)	Additional to Kyoto cap and net (absolute) gain for the atmosphere
4	Generated inside the Kyoto accounting space	No change in Kyoto cap: no net gain for atmosphere	Voluntary units generated inside compliance accounting	Kyoto cap not reduced and no net direct gain for the atmosphere, but more voluntary emission reductions occurring in the economy

12.15 Communicating accurate carbon claims

Provided the brand rules of voluntary carbon standards clearly specify the type of claim able to be made from the purchase of voluntary-compliance units (including the type of carbon neutrality it is capable of conferring), and provided the environmental effect of the transaction is made clearly available to buyers, sellers and consumers, then the legitimacy and integrity of this kind of transaction can be safeguarded.

This complex situation can be communicated relatively simply and clearly by depicting different grades of “climate friendly” or “carbon neutrality” in a similar way that there are different grades of eggs available on supermarket shelves. As with eggs, there are different (and often complex) implications arising from different purchase choices. But the consumer can cope with such choice, particularly if there is a way to drill down into the detail behind the different choices.

Figure 12.10 Notion of different grades of “climate friendly” or “carbon neutrality” (grades matching carbon neutrality types described in table 12. 8 above)



A particular advantage of domestic voluntary-compliance emissions trading is that it potentially provides Corporate Social Responsibility (CSR) buyers with the opportunity to purchase CSR outcomes from within their own communities. Currently, voluntary carbon buyers commonly need to buy carbon credits from offshore due to a lack of sufficient local supply of units. So, by purchasing carbon credits from China, a buyer is helping to finance clean technology in China. But if a domestic voluntary carbon market were functioning, there would be a lot more opportunity for CSR buyers to support clean technology in New Zealand, by purchasing New Zealand voluntary carbon credits.

A recent market survey of 500 New Zealand businesses⁴⁶ illustrates the potential value of such a voluntary carbon market instrument from the point of view of potential buyers. Results included the following responses to questions:

- (a) How likely is it that your business or organisation would ever buy voluntary carbon credits derived from New Zealand-based clean technology projects?
- 33% of respondents said “likely” or “very likely”;
 - 50% said “didn’t know”; and
 - 6% said “not likely” or “not likely at all”.
- (b) If your business or organisation was interested in buying voluntary carbon units, would your business or organisation prefer to:

Buy local carbon credits that caused an increase in the uptake of clean technology in New Zealand, and thereby helped New Zealand to reduce its emission reduction target under the Kyoto protocol (but did not help the atmosphere directly in the short term):	44%
Buy carbon credits from a non-Kyoto country (for example a developing country or the USA) that caused an increase in the uptake of clean technology in that country (and helped the atmosphere directly in the short term because that country does not have a Kyoto target):	7%
Not applicable / don’t know	49%

12.16 Conclusion

The voluntary carbon market is a significant component of the carbon finance landscape both in New Zealand and internationally. It has played an important role as a pre-compliance financing instrument in the period leading up to the implementation of compliance regimes. Its role may also increase in importance owing to potential delays or disruptions to the progress of international climate change agreements and financing instruments in coming

⁴⁶ This business survey was undertaken by Carbon Partnership Ltd in collaboration with the Cawthron Institute, Key Research and funded by the Tindall Foundation.

years. In New Zealand the voluntary carbon market could, for example, play a significant role in building climate change mitigation capacity in the agriculture sector during the years leading up to agriculture coming into the NZ ETS or other future compliance instrument.

The potential role of the voluntary carbon market as a complementary measure to top down regulatory instruments is gaining recognition in New Zealand and to some extent internationally. This recognition may extend more widely as climate policy and finance experts realize the need to use every tool in the box if we are to meet the stabilisation targets needed to avoid dangerous anthropogenic interference in the climate system.

References

- California Environmental Associates 2007. Design To Win. Philanthropy's Role in the Fight Against Global Warming. California Environmental Associates, August 2007. Available at: http://www.ceaconsulting.com/work/case_studies.aspx?v=1&c=1&c=29
- CCBA. 2008. Climate, Community & Biodiversity Project Design Standards Second Edition. CCBA, Arlington, VA. December, 2008. Available at: www.climate-standards.org
- Commerce Commission 2009. Guidelines for Carbon Claims. Fair Trading Act 1986. Available at: <http://www.comcom.govt.nz/fair-trading-resources/>
- Hamilton, K., Sjardin, M., Marcello, T., and Xu G. 2008. Forging a Frontier. State of the voluntary carbon markets 2008. Ecosystems Marketplace and New Carbon Finance. Available at: <http://www.carboncatalog.org/blog/2008/05/13/state-of-voluntary-carbon-markets-2008/>
- Hamilton, K., Sjardin, M., Peters-Stanley, M., and Marcello, T. 2010. Building Bridges: State of the Voluntary Carbon Markets 2010. A Report by Ecosystem Marketplace & Bloomberg New Energy Finance.
- Hamilton, K., Sjardin, M., Shapiro, A., and Marcello, T. 2009. Fortifying the Foundation. State of the voluntary carbon markets 2008. Ecosystems Marketplace and New Carbon Finance. Available at: <http://www.ecosystemmarketplace.com/>
- IPCC 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.
- ISO 14064-2:2006. Greenhouse Gases - Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements. First Edition 2006-03-01.
- Kossoy, A., and Ambrosi, P. 2010. State and Trends of the Carbon Market 2010. World Bank, Carbon Finance, 2010. Available at: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2010_low_res.pdf

- MED 2007. Benefit-Cost Analysis of the New Zealand Energy Strategy, Ministry for Economic Development.
- United Nations 1998. Kyoto Protocol. Available at: http://unfccc.int/kyoto_protocol/items/2830.php
- Verified Carbon Standard 2011. VCS Standard 2011 V3.0, 8 March 2011. Available at: www.v-c-s.org/about.html
- Voluntary Carbon Standard 2008a. Voluntary Carbon Standard 2007.1. Available at: http://www.v-c-s.org/docs/Voluntary%20Carbon%20Standard%202007_1.pdf
- Voluntary carbon Standard 2008b. Voluntary Carbon Standard Program Guidelines 2007.1. Available at: http://www.v-c-s.org/docs/Voluntary%20Carbon%20Standard%20Program%20Guidelines%202007_1.pdf
- Ward, M. and Weaver, S.A. 2008. The Leader's Guide to International Emissions Trading and Carbon Markets. GtripleC, Carbon Partnership, and the ⁰Climate Group. Available at: <http://www.gtriplec.co.nz/papers-and-articles/emissions-trading/>
- Ward, M., and Weaver, S.A. 2008. Scaling up voluntary mitigation activities. GtripleC and Carbon Partnership Discussion Paper 02/08. Available at: <http://www.gtriplec.co.nz/papers-and-articles/carbon-neutrality/>
- Ward, M., and Weaver, S.A. 2008. The meaning of *carbon neutrality* inside jurisdictions with caps. GtripleC and Carbon Partnership Discussion Paper 04/08. Available at: <http://www.gtriplec.co.nz/papers-and-articles/carbon-neutrality/>
- Ward, M., and Weaver, S.A. 2008. Voluntary inside compliance – counting and credibility. GtripleC and Carbon Partnership Discussion Paper 03/08. Available at: <http://www.gtriplec.co.nz/papers-and-articles/carbon-neutrality/>
- Ward, M., and Weaver, S.A. 2008. Voluntary market activities – is there a role in Kyoto countries? GtripleC and Carbon Partnership Discussion Paper 01/08. Available at: <http://www.gtriplec.co.nz/papers-and-articles/carbon-neutrality/>
- Weaver, S.A. and Hewitt, T. 2010. Voluntary Carbon Market Opportunities for Maori Owners of Indigenous Forest. Project Overview Report V1. Carbon Partnership Ltd.