

# CARBON NEUTRALITY, CARBON FOOTPRINTS, OFFSETS..... AND CREDIBILITY

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## 1. INTRODUCTION

For many New Zealanders, it may be possible that the first time they really engage with climate change policy is when they are enticed to make a purchasing decision from a particular firm because it or its products are 'carbon neutral'. Or perhaps they work for firms or government departments who are 'going carbon neutral'. Or they are attending a 'carbon neutral' event. Or they visit a website that allows them to calculate their 'carbon footprint' and encourages them to 'offset' their carbon emissions, whether across their whole lifestyles, or perhaps just for their next overseas airline flight.

Such engagement and activities occurs in what is often described in climate change policy circles as the 'voluntary space'. A range of private sector service providers has emerged, offering various products and services. And a *voluntary carbon market* now exists internationally and is beginning to show up in New Zealand. These activities and this market are quite distinct and separate from the compliance carbon market that has built around the Kyoto Protocol's emissions trading and project-based flexibility mechanisms.<sup>1</sup> This paper focuses on this voluntary space and the voluntary carbon market. It is aimed at readers who are interested in policy issues surrounding carbon neutrality programmes and the voluntary carbon market.

One cannot overstate the importance of the activity happening in this voluntary space to inform New Zealanders about their contribution to the problem of climate change and empower them to choose to take some personal steps to redress it. The same is then true of the importance of ensuring that if the public does become engaged in these ways, the systems behind this – carbon calculation tools, the nature of offset activities, the verification of performance and the credentials of the verifiers – are then of the highest integrity. Should this not be the case, the loss of credibility and ensuing public disillusionment will potentially be a serious set back in the challenge to address the risks of climate change. However, what this paper signals is that there are ways to ensure that activities done in the voluntary space do have integrity and can play a crucial role in New Zealand's climate change programme.

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<sup>1</sup> The government's recently proposed NZ Emissions Trading Scheme (NZ ETS) is an example of a compliance market scheme, as are the various mechanisms of the Kyoto Protocol.

New Zealand is lagging behind some other international jurisdictions, most notably the United Kingdom, in terms of developments in this so-called ‘voluntary carbon market’ arena. It is possible to learn from others’ experience, good and bad, and avoid problems through good processes and public communication. It is clear that some recent international experience has raised serious concerns in some instances. Consumers have been alerted to ‘carbon cowboys’ and warned to take a ‘buyer beware’ approach. This inevitably leads to scepticism and erosion of public confidence and, in response, there are some moves towards government regulation. All of this is regrettable and, hopefully, avoidable in New Zealand.

The purpose of this paper is to set out and discuss key issues, in particular across two areas:

- (i) what constitutes proper and credible offsets in the voluntary carbon market<sup>2</sup>, given the nature of emissions to be offset and the objectives of the party wishing their emissions to be offset;
- (ii) the emerging elements that underpin credibility, and what might be appropriate in New Zealand:
  - carbon footprint calculators that use credible methodologies and allow for accurate assessments of greenhouse gas emissions
  - international standards and guidelines for offsets in the voluntary carbon market
  - the verification/certification process, e.g. for ‘verified emission reductions’ (VERs) or ‘voluntary carbon units’ (VCUs), including accreditation of the companies doing the verifying/certifying
  - registry systems for the units in the voluntary carbon market

Following an introductory discussion on some key terms (section 2), the paper focuses on the question of ‘what are proper offsets?’ (section 3). It then describes the key elements needed to underpin the credibility of carbon neutrality programmes and the voluntary carbon market (section 4). The paper concludes with some remarks about a ‘way forward’ for New Zealand (section 5).

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<sup>2</sup> The term ‘offsets’ is also used in the compliance policy space, where a firm (or country) with a legal obligation to reduce emissions to a certain level, or by using some prescribed technology or practice, is given the option to ‘offset’ excess emissions in some other way, including by buying others’ reduction credits. In this paper, however, the focus is on ‘offsets’ that people or organisations may ‘voluntarily’ choose to undertake, often as part of some ‘carbon neutrality’ programme.

## **2. BACKGROUND AND CONTEXT**

Before getting into the substance of these issues, it is useful to have some understanding of a few key terms and concepts as they are understood and used in this paper.

### ***Carbon neutrality and carbon footprints***

The first is 'carbon neutral'. What does this mean exactly? In truth, there is no one single meaning.<sup>3</sup> The term depends on the context in which it is used and can be seen to be more of a concept. Of course this means it is open to misunderstanding and misuse.

In modern societies it is almost impossible for any action to be inherently carbon neutral. Even some of the most renewable activities we can think of, e.g. cycling to work or walking in a park, can be seen to share in some associated carbon emitting activities, albeit perhaps a very small share. Building and maintaining roads, including the provision of traffic light systems, has a 'carbon emissions footprint'. So does making paths in parks and mowing the lawns. Likewise, wind farms have a carbon footprint associated with the materials they are made of and the overall construction and maintenance process. In this same light, it can be seen that hydroelectric power, especially large scale, also has a footprint.....and nuclear power a very substantial footprint.

In broad terms, therefore, the concept of carbon neutrality also involves compensating for inevitable carbon emissions by additionally engaging in some kind of activity that removes an equal amount of carbon from the atmosphere, or causes it not to be emitted by others. What this normally entails is:

- (i) the calculation of a 'carbon footprint' for the primary activity, including after measures are taken to reduce this footprint as much as is feasible and cost effective; and
- (ii) making an arrangement to have some other compensating 'offset' action taken that reduces carbon emissions or enhances the carbon take-up in a carbon sink, e.g. a growing forest.

There are complexities right across this chain of events, all subject to judgements, calculations and interpretations.....and misunderstandings and error. To begin with, what is a carbon footprint? At its simplest level it is an estimation of the emissions of greenhouse gases, normally calculated as kilogrammes or tonnes of carbon dioxide (CO<sub>2</sub>) equivalents<sup>4</sup>, associated with a particular activity.<sup>5</sup> But how micro-scale do you go and where do you draw the boundaries?

Do you include emissions 'embodied' in the manufacture of associated goods, e.g. a car or the road it drives on, or, using this example, is it just the emissions from petrol use? If an event such as a conference or concert wants to brand itself, and be, carbon neutral, what are the boundaries here? Are they just emissions associated with the production of the event (electricity, vehicle use and airline flights of those involved in putting it on or performing in it, etc) or does the boundary include the emissions associated with people attending the event? And if you explore the footprint of agriculture-based products, e.g. food and clothing, how far back up the chain do you go? Does the footprint of a fine wool suit include the methane emissions of the sheep?

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<sup>3</sup> The New Oxford American Dictionary says "Being carbon neutral involves calculating your total climate-damaging carbon emissions, reducing them where possible, and then balancing your remaining emissions, often by purchasing a carbon offset."

<sup>4</sup> Non CO<sub>2</sub> greenhouse gas emissions can be expressed in CO<sub>2</sub> equivalent (CO<sub>2</sub>e) terms by applying a factor known as the global warming potential (GWP). This factor is different for each greenhouse gas.

<sup>5</sup> Estimations of emissions are typically done by gathering information on the underpinning activities that cause emissions and then using standard emission factors, e.g. so many kilogrammes of CO<sub>2</sub> per litre of petrol or per kWh of electricity.

It is clear that judgements must be made. In most cases the focus becomes the question of what emissions can be seen to be directly or indirectly under some degree of control by the emitter involved. In the interests of public credibility, where someone seeks to influence someone else by such carbon neutral branding (or perhaps labelling in the case of food or clothes) these judgements should be transparent to anyone who thus may be influenced. This is a consumer 'right to know' issue.

In practice, the determination of what emissions should be included and what might not be is based on science and policy (e.g. in the development of standards), with the latter normally being influenced by public perceptions.

### ***Additionality***

Another important concept is that of 'additionality'. Put simply, this means that there should not be offset 'credits' generated by actions that were just going to be done anyway, whether or not they received the financial incentive of a credit. Coming up with means to address additionality is at the heart of most standards and guidelines that are emerging to help ensure the credibility of the voluntary carbon market. They are also at the core of formal rules for activity-based mechanisms under compliance markets, e.g. for the Clean Development Mechanism under the Kyoto Protocol. Lax rules and procedures for additionality will generally lead to somebody (or the atmosphere) being duped or short-changed.

### ***Double counting***

The second key potential problem that standards and guidelines seek to address is that of double counting. This concern is that more than one party may benefit from the same offset activity and believe that their emissions have been compensated for. The atmosphere is normally the ultimate loser here.<sup>6</sup>

But, in practice, the logic around 'double counting' is something of a tricky issue in the event of voluntary actions being taken inside a sector that is also covered by a compliance 'cap and trade' programme. The logic needs to be thought through carefully – as set out in the discussion on 'nesting' in section 3 below.

### ***Interface with 'cap and trade' compliance programmes***

There is, therefore, a key issue about the distinction between emissions that are covered under some form of emissions 'cap and trade' programme and those that are not. This is true of both the emissions to be offset, and the activities associated with the offsets. A key point is that New Zealand as a country that has ratified the Kyoto Protocol sits under the Kyoto environmental cap. From 1 January 2008, most, but not all, of its emissions of greenhouse gases, and some, but not most, of its carbon removals by sinks are therefore covered under the Kyoto accounting system. This important distinction, and the issues that stem from this, are taken up in more detail in section 3.

Another noteworthy point is that if Australia does not ratify the Kyoto Protocol, there is a key difference to what may be applicable there versus what is applicable in New Zealand. This becomes very relevant where there may be interests in trans-Tasman voluntary carbon market activity.

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<sup>6</sup> On the flip side of this concern, there is also potential for the double counting of emissions, e.g. the same emissions being counted (and offset) by two different parties.

### **3. WHAT ARE 'PROPER' OFFSETS?**

Fundamentally, what constitutes 'proper offsets' in the voluntary carbon space depends on the nature of the emissions to be offset and the objectives of the party wishing their emissions to be offset.

#### ***Nature of emissions to be offset***

At one level, it may be seen that the emission of any one tonne of CO<sub>2</sub>e to the atmosphere is no different than any other. However, it is not as simple as this on two main counts. The first is about timing, in particular if the offset activity occurs over a very different timeframe than the emission to be offset, e.g. as can be the case with 'growing trees'.<sup>7</sup>

But the main issue here is the point noted above, about how voluntary offset activities interface with compliance policies such as the Kyoto Protocol which have established an overall environmental cap and allow internal emissions trading. This is because such policy frameworks have explicitly established the environmental outcome over a given management period. 'People' inside this system then abate and trade their way to this outcome.

For example, the environmental outcome during 2008-2012 that has been set by Kyoto is 'allowed emissions' of no greater than about 55.8 billion tonnes of CO<sub>2</sub>e across the industrialised countries that have ratified (all but the United States and Australia). Individual actions to reduce emissions occurring within this accounting system don't change the system-wide environmental outcome, i.e. the allowed 55.8 billion tonnes.<sup>8</sup> They just affect the overall cost in terms of this being met.

It is important that the reaction to understanding this is not to think that individual actions to reduce emissions in industrialised countries therefore don't really matter. Indeed such actions are critical for these countries to collectively meet their Kyoto commitments and to set these countries on pathways to be able to meet future deeper emission reduction targets at reasonable cost, and thereby to stabilise human-induced climate change at less than dangerous levels.

The key issue, then, is which emissions from sources and removals (sequestration) by sinks are covered under the Kyoto accounting system, and which are not. Table 1, below, describes this for the circumstance of New Zealand.<sup>9</sup> This table becomes relevant from 1 January 2008, the beginning of the first Kyoto compliance period.

In general terms, to be 'proper', offset actions should occur in the same category (i.e. covered and uncovered) as the emissions they are intended to offset. A particularly relevant example is air travel. For domestic flights, offset actions should be those for which emissions are covered by the Kyoto accounting system (because domestic aviation emissions are included in the national inventory). For international flights, offset actions should be those for which emissions are not

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<sup>7</sup> For example, is the quantity of carbon absorbed by the growing trees occurring in the same general period as the emissions to be offset, or is the calculation based on carbon absorbed over the life of the trees?

<sup>8</sup> What is meant here is that, assuming full compliance and full trading, if actions inside a Kyoto country reduce emissions beyond what otherwise would have occurred, this means that some of the initial allowance of emission units are not needed for those 'otherwise' emissions, and can be used for emissions elsewhere in the overall Kyoto system – In short, other emission reductions somewhere in the overall system are not needed.

<sup>9</sup> What is meant by "for New Zealand" is that (1) New Zealand is a Party to the Kyoto Protocol; and (2) there are some voluntary aspects of the Kyoto Protocol with respect to forest activities, and elements of this table reflect what New Zealand has chosen to do with respect to these. Also see footnote 12.

covered by the Kyoto accounting system.<sup>10</sup>

What is covered (over 2008-2012)	What is <u>not</u> covered (over 2008-2012)
<p><b>Emissions</b></p> <ul style="list-style-type: none"> <li>All emissions of the ‘six’ greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>) in all sectors <u>except</u> those emissions listed in the ‘not covered’ column</li> </ul> <p>This includes CO<sub>2</sub> emissions over 2008-2012 (including harvesting emissions) from all lands where forests existed on 31 Dec 1989 that have undergone a land-use change (deforestation) after 1 Jan 1990</p> <p><b>Removals by sinks (credits)</b></p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> removals from all new forests established after 31 Dec 1989 through a land-use change</li> </ul>	<p><b>Emissions</b></p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> (and other ghg) emissions from aviation and marine fuels for international travel/voyages (whereas those for domestic flights and voyages are covered)</li> <li>CO<sub>2</sub> emissions (including harvesting emissions) from all forests existing on 31 Dec 1989, <u>except</u> emissions over 2008-2012 if such forests undergo a land-use change (deforestation) after 1 Jan 1990 – in which case the emissions are included (as shown in the left hand column)</li> <li>CO<sub>2</sub> emissions (including harvesting emissions) from ‘individual’ post-1990 forests (so-called Kyoto forests) that are greater than any previously received credits for these same forests<sup>11</sup></li> <li>CO<sub>2</sub> (and other ghg) emissions from croplands and rangelands</li> </ul> <p><b>Removals by sinks (credits)</b></p> <ul style="list-style-type: none"> <li>CO<sub>2</sub> removals from all forests existing on 31 Dec 1989, and croplands and rangelands<sup>12</sup></li> </ul> <p><b>Other</b></p> <ul style="list-style-type: none"> <li>Any ghg emissions or CO<sub>2</sub> removals in any sector in developing countries (where these are <u>not</u> CDM project activities) or in non-ratified industrialised countries</li> </ul>

**Table 1: Coverage, or not, of emissions and removals by sinks (for New Zealand) under the Kyoto Protocol first commitment period, beginning 1 January 2008**

<sup>10</sup> This example reflects a key point of logic that needs to be understood in the discussion of what constitutes ‘proper offsets’ in the voluntary carbon space. If, from 1 January 2008 somebody believes that their personal international flight emissions would be offset by growing a new forest in New Zealand, this is not correct because this forest will earn credits in the Kyoto accounting system. As noted above, these extra units in the Kyoto system allow additional emissions elsewhere in the Kyoto system. So the atmosphere will not ‘see’ an offset to the international aviation emissions that it has ‘seen’.

<sup>11</sup> This is a particular rule (so-called “fast growing fix”) under the Kyoto Protocol that ensures that these forests aren’t penalised when they reach harvesting by the fact that credits only began to accrue from 1 Jan 2008, not from when these trees began to grow and sequester carbon.

<sup>12</sup> Note that the reason these removals (and any emissions from the same lands) are not covered is because New Zealand has elected to not account for Article 3.4 activities during the Kyoto Protocol first commitment period.

However, there is also a technical feature of the Kyoto accounting and registry system that means that it is feasible that all offset actions are from activities covered under the Kyoto system. If Kyoto units (AAUs, RMUs, ERUs and CERs)<sup>13</sup> are acquired by the party seeking to offset their emissions and transferred into the *retirement* account in the New Zealand registry (which is used to assess New Zealand's compliance with its Kyoto commitments), this is the equivalent of a 'voluntary' offset action in a 'covered' sector. This is because, just as reducing emissions inside New Zealand's inventory helps New Zealand comply with its Kyoto commitments, so too does giving the government a Kyoto unit to retire against its emissions.

If, however, Kyoto units are transferred into the *cancellation* account in the New Zealand registry (meaning they can not be used for New Zealand's compliance with its Kyoto commitments), this is the equivalent of an 'voluntary' offset action in a 'not covered' sector.<sup>14</sup> This is because by taking units 'out of action' in the Kyoto system, total emissions to the atmosphere (from this system) must be lowered, just as would be the case for a reduction occurring outside the system.

### **Objectives of the party seeking offsets**

In the event that the emissions of the party seeking to offset their emissions are covered under Kyoto accounting (from 1 January 2008), there is an additional issue in terms of what are 'proper' offsets. If the objective of this party is to help New Zealand meet its Kyoto commitments it needs to ensure the offset actions are covered under Kyoto accounting. Or, as noted above it could acquire and retire Kyoto units in New Zealand's national (Kyoto) registry.<sup>15</sup> It might be considered as logical that this may be their objective, given that any emission reduction actions they take personally to reduce their carbon footprint are helping New Zealand to meet its commitments.

However, it may be that their objective is to ensure an absolute reduction for the 'atmosphere'. In other words they may want emission reductions that go beyond the Kyoto environmental outcome. Should this be the case, the offset actions should either not be covered by the Kyoto accounting system, or this party could acquire and cancel Kyoto units in New Zealand's national (Kyoto) registry.

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<sup>13</sup> AAUs are *assigned amount units*, the name for the standard Kyoto 'allowed emissions' units. RMUs are *removals units* which are credits from the Kyoto Protocol's provisions for industrialised countries related to forest sinks. ERUs are *emission reduction units* from projects in other industrialised countries under the Kyoto Protocol's Joint Implementation (JI) mechanism. CERs are *certified emission reductions* from projects in developing countries under the Kyoto Protocol's Clean Development Mechanism (CDM).

<sup>14</sup> The fact that this is technically possible should not be construed as a suggestion that there is no need for a voluntary carbon market and/or voluntary carbon market units distinct from Kyoto compliance units. It is noteworthy that there was a considerable backlash from many quarters when UK DEFRA suggested early in 2007 in draft UK guidelines for the voluntary carbon market that only Kyoto units and EU ETS compliance units be used for offsets. What had been overlooked was the considerable international activity in projects with many environmental and social benefits beyond just carbon that would be put at risk by such a narrow treatment. Indeed, this is seen as one of the great benefits of the voluntary carbon market, i.e. that it can accommodate means to value desirable project attributes beyond just carbon (e.g. biodiversity values of forestry projects). One important technical point in this regard is that registries for voluntary units need to maintain a record of such additional attributes and not simply homogenise all units and lose this project-specific detail.

<sup>15</sup> Note that there should also be a registry for voluntary units (see section 4). But this is a different registry than the registry used for Kyoto compliance units.

## Summary 'decision tree'

The detail of this 'proper offsets' discussion above is summarised in the form of a decision tree in Figure 1 below.

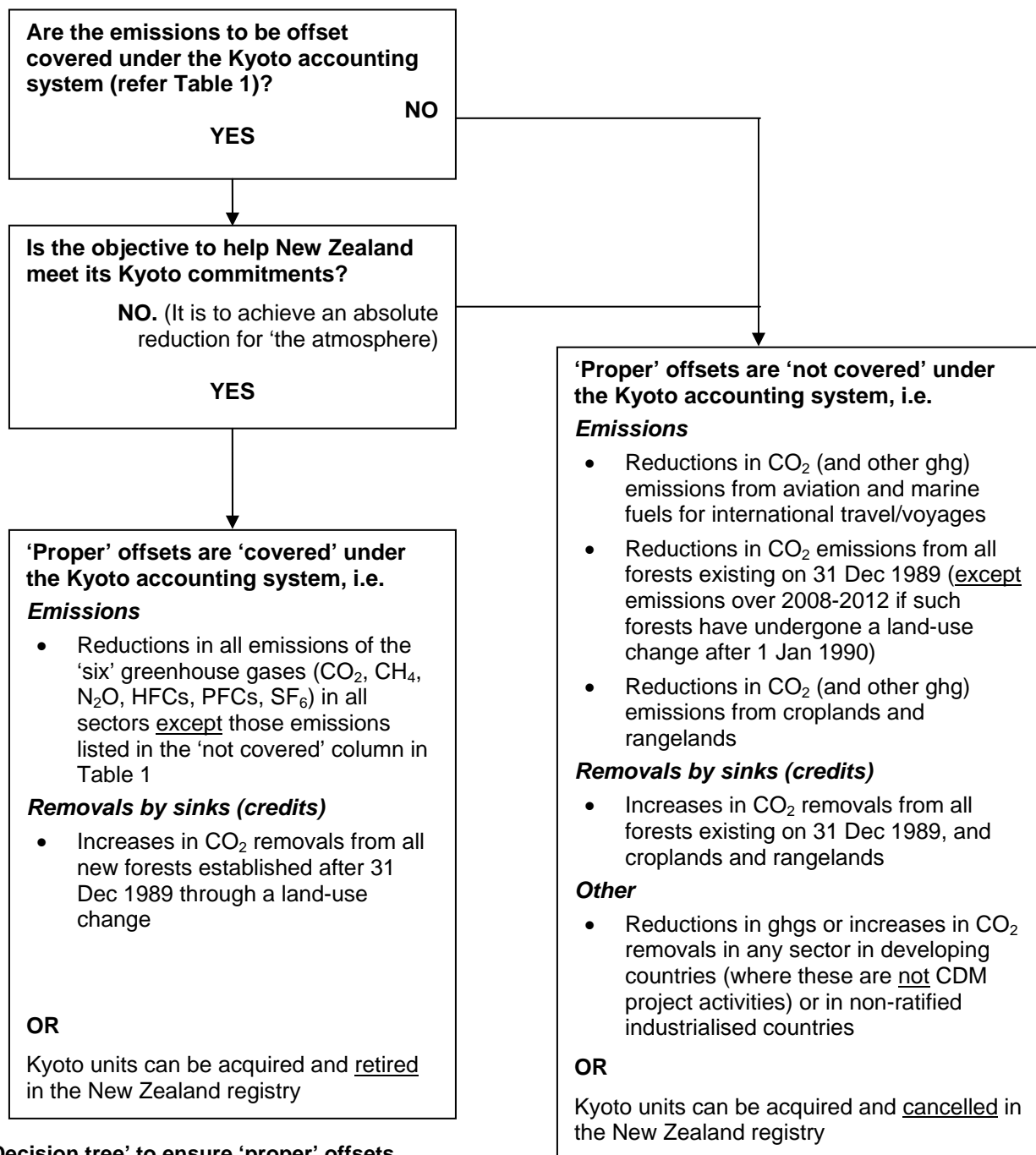


Figure 1: 'Decision tree' to ensure 'proper' offsets

## Nesting 'offsets' – Compatibility with the Kyoto market system

Subject to the additionality and 'no double counting' provisions discussed above, it is fully feasible that offset actions in the voluntary carbon space can sit within the Kyoto system and be fully credible. One way has already just been discussed, i.e. (as appropriate) retiring or cancelling Kyoto units.

But another way is through the creation of a separate (and kept separate) market commodity which could be called VERs or VCU, or something similar – e.g., generically, ‘certified carbon units’ (CCUs). Under this modality, an intermediary party (or parties) could be responsible for a process following accepted standards (as discussed in section 4 below) that:

1. Identifies possible activities to reduce emissions or enhance removals by sinks that are “real, additional and verifiable”
2. Implements these activities
3. Has an accredited, independent verifier certify that the activities are “real, additional and verifiable” and measure the resulting reduced emissions or enhanced removals by sinks
4. On the basis of these certified results, issues the voluntary market units (i.e. the VERs, VCUs or CCUs)
5. Transfers the ownership of these units to the party seeking offsets at some agreed price.

This voluntary market process can cater to either the situations of the final ‘covered’ or ‘uncovered’ boxes in Figure 1. These simply identify the nature and location of the appropriate activities, given the questions and answers earlier in the ‘decision tree’.

For system-wide integrity it will be important that standards are followed and there is full transparency in terms of the nature of the offsets commodity, i.e. how and where the offset units have been generated. There is also a responsibility placed on the buyer to purchase offsets relevant to the circumstances of the emissions they are seeking to offset, and their objectives. So, for example:

- If a voluntary market unit that is from activities covered under Kyoto accounting (e.g. an energy efficiency project in a building) is purchased to offset emissions from international air travel, in practice there is no effective offset to these emissions – so the atmosphere loses out.
- Similarly, if an offsets buyer in the United States or Australia purchases offset units from activities covered under Kyoto accounting, there is no effective offset to their US or Australia emissions – because, overall, the emissions in the Kyoto system will not have been reduced.

The issue of ‘double counting’ is sometimes raised to question whether it is possible and ‘proper’ to allow voluntary carbon market ‘offset’ credits to be issued for activities sitting inside a compliance market where there will be compliance units associated with the same emissions. It is argued that two different parties will get benefit from the same action and this must constitute ‘double counting’.

But this argument can be seen to not be logical. First, consider the prior step in a carbon neutrality programme, that of reducing one’s own emissions. A good example is emissions from the use of electricity. From 1 January 2008, if electricity sector emissions are reduced in New Zealand by this party’s voluntary action, the result is that this makes it easier for New Zealand to meet its Kyoto commitments. So the reducing party has benefited from their action in their quest for carbon neutrality and the New Zealand government has benefited.<sup>16</sup> This is a fact, and there is nothing wrong with this. The government would surely welcome this voluntary action.

Now consider the next carbon neutrality step, offsetting the residual emissions. Here the party is prepared to have someone else take actions that reduce emissions (or enhance sinks). The voluntary carbon market is a means to facilitate this to happen. This includes the creation of

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<sup>16</sup> Under the just announced NZ Emissions Trading Scheme (NZ ETS), from 1 January 2010 when emissions from stationary energy are included, the benefit shifts from the NZ government (who needs to provide Kyoto units to meet its compliance obligations) to an upstream point of obligation that will not now have to acquire and provide compliance units.

voluntary units that are created and transferred from the 'seller' to the 'buyer'. As long as these actions pass the credibility test of being "real, verifiable and additional", there is no logical distinction between these actions that reduce emissions and the self-actions of the prior step. Yes, the New Zealand government (or from 2010 some upstream point of obligation in the NZ ETS) also benefit. But this is not a situation where 'double counting' concerns are justified. Just as taking actions within ones own 'footprint boundary' is a good thing, so too is being prepared to pay someone else to reduce emissions outside that boundary (and any other carbon neutrality programme boundary) that would not otherwise have been reduced.

What would be an example of 'double counting'? This could happen and would be of serious concern if, for example, the same offset action in the voluntary space created credits that were sold to two different parties seeking to offset their residual emissions. But this is entirely avoidable if:

- the number of credits from a given emissions reduction or sink enhancement action are verified/certified by some accredited third party;
- voluntary carbon market units that are unique and identifiable are issued in an electronic registry; and
- when these units are transferred to the party seeking the offset they are 'nullified'<sup>17</sup> in some manner that means they can not be subsequently transferred and used by another party.

There is one other possible, and quite different, circumstance where a double counting situation could arise. This would be if the government were to provide compliance units in some projects type scheme, e.g. similar to the Projects to Reduce Emissions (PRE) scheme that occurred in New Zealand in 2003 and 2004. Here the government provides Kyoto compliance units for qualifying projects for the emission reductions that will occur because of these projects during 2008-2012. If the voluntary market issued voluntary units for these same emission reductions, this would be an example of 'double counting' and this would not be proper.

But this should be entirely preventable by having in place the proper credibility elements of a robust voluntary carbon market. In particular, if the case has been made to the government scheme that it was the value of the compliance market credits that made these projects viable (an essential element of an additionality assessment), it would not be possible for the same case to be made in the voluntary carbon market scheme – i.e. it should fail the requisite additionality test here.<sup>18</sup>

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<sup>17</sup> In Kyoto jargon this registry step is called *retirement*, i.e. the use by an ultimate party to comply with their obligations. (In a voluntary setting, of course, these are voluntary self-imposed obligations – but the logic holds.)

<sup>18</sup> It is perhaps conceivable that in the situation of a coordinated proposal for a specific 'not that close to economic' project, that the project proponent can legitimately show that it requires the value of both compliance market credits and voluntary credits, so both additionality assessments could pass their respective tests, and in the knowledge of each other. Also note that there is a distinction between the same actions/same reductions and the 'same project'. It is possible that a project that receives compliance credits may legitimately generate voluntary credits for what falls outside the scope of the compliance contract, e.g. was for a different time period or was for the portion of the capacity of the project that went beyond what the compliance contract covered. This said, it is still required that the additionality provisions of a robust voluntary carbon scheme are met and voluntary credits are not just awarded because a project happens to reduce emissions.

#### **4. UNDERPINNING CREDIBILITY ELEMENTS**

Trade in the global voluntary carbon market tripled in 2006 generating about 24 million tonnes of voluntary carbon offsets.<sup>19</sup> (By comparison, the compliance market generated over 500 million tonnes of Joint Implementation and CDM reduction credits in 2006.<sup>20</sup>) While currently the voluntary carbon market is therefore comparatively small, voluntary carbon offset companies and their offset projects are expected to boom on the back of public concern over greenhouse gas emissions. Recent analysis by ICF, a London based climate consultancy, estimated the voluntary market could grow to well over 400 million tonnes by 2010.

##### ***Standards and guidelines***

Naturally, in the face of such rampant growth there has been growing pressure for the widespread adoption of transparent and consistent processes and standards that reduce consumer uncertainty and encourage the growth of a robust and credible voluntary offset industry. Voluntary standards and guidelines have successfully increased consumer confidence in markets as diverse as organic foods (e.g. Demeter) and ethically sourced products (e.g. Fairtrade).

Regulation of the voluntary carbon market and industry through the development of standards which set criteria by which projects are chosen and evaluated is seen as necessary in order to address uncertainties around additionality, independent verification and monitoring, permanence, leakage, and double-counting. The imperative to establish rigorous standards and guidelines has been driven by a broad range of players coming from both government and individual or groupings of organisations, for example:

**Gold Standard for Voluntary Emission Reductions** – This is the most rigorous standard to date. Widely recognised, the Gold Standard Foundation which manages the Standard is owned and supported by 42 non-government environmental organisations. The Gold Standard only supports renewable energy projects with proven additionality and that have social and environmental benefits for local communities. It specifically does not support land use, land-use change and forestry (LULUCF) projects due to the lack of guarantee of permanence.

**Voluntary Carbon Standard (VCS)** – The Climate Group, the International Emissions Trading Association and the World Economic Forum Global Greenhouse Register have jointly developed the VCS. The first version of the VCS was published in 2006 and an updated version was released for consultation in March 2007. The finished product is expected in November 2007. It will include LULUCF projects.

**Green-e National Standard** – Developed by the Center for Resource Solutions (CRS), a US-based non-profit company, the Green-e National Standard came into effect on January 1, 2007 and applies to all Green-e certified renewable energy products: Renewable Energy Certificates (RECs), Utility Green Pricing Programs, and Competitive Market Electricity Products. CRS measures and verifies these renewable energy projects. They are currently working on developing new, stricter standards for RECs that are converted to carbon offsets.

**Verified Emissions Reduction Standard (VER+)** – The German independent certifying body TÜV SÜD, in conjunction with others, has developed a new VER+ standard for its certification of voluntary carbon offset projects. This is intended to ensure full additionality while providing a flexible approach on the utilised baseline and monitoring methodology. It also specifically includes LULUCF projects.

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<sup>19</sup> *State of the Voluntary Carbon Market, 2007 – Picking up Steam*, Hamilton et al

<sup>20</sup> *State and Trends of the Carbon Market (2007)*, World Bank

**Voluntary Offset Standard (VOS)** – The VOS was launched at the end of June 2007 by the European Carbon Investors and Services, an association of carbon market service providers, including a number of major investment banks. Based on the existing standards promoted by the UNFCCC, the VOS aims to bring the voluntary market up to the level of the regulated and standardized procedures of the Kyoto compliance market, namely for Joint Implementation and the Clean Development Mechanism. It also endorses the Gold Standard methodology.

**Climate, Community and Biodiversity (CCB) Standards** – the Climate, Community & Biodiversity Alliance (CCBA) is a partnership including six companies and six NGOs. Convened by Conservation International, they identified the need for a set of internationally accepted standards for designing and evaluating multiple-benefit forestry projects to leverage the carbon market to support forest protection and restoration projects around the world that deliver significant climate, local community and biodiversity benefits.

**Voluntary Code of Best Practice for the Provision of Carbon Offsetting to UK Customers** – These draft guidelines were released by the UK Department for Environment, Food and Rural Affairs (DEFRA) for consultation in January 2007. They created controversy by suggesting that only units deriving from the Kyoto compliance regime (including the EU ETS) would be deemed credible and acceptable. These units could be purchased and cancelled in the official UK registry. Given the controversy, it is generally hoped that the future guidelines will offer greater flexibility.

In sum, the challenge facing the voluntary carbon market is how to deal with all these different standards. Could one global standard be wrangled out of this mix of standards, or will a market leader emerge and command the space? It should be noted that the coverage is not the same across the standards. This is particularly the case for projects in the LULUCF sector. This suggests that complete convergence of standards is unlikely in the near term.

### ***Accreditation of verifiers/certifiers***

Standards and guidelines alone cannot ensure the quality of a voluntary offset project. Only through the validation and verification<sup>21</sup> of these projects by qualified and independent third party auditors will there be a sense of credibility and risk minimisation for investors. There are significant advantages to a global standard in these areas in that it would allow a consistent approach to be taken across all nations and makes data comparisons far easier.

In March 2006 the International Organisation for Standardisation (ISO) introduced ISO standards to be used as templates for voluntary emission reduction projects around the world. The standards were developed by a working group of some 70 international experts from 30 countries and several liaison organisations, with the UNFCCC having observer status.

ISO 14064 has three parts—the first, ISO 14064-1, contains requirements and recommendations for designing and developing an organizational GHG emissions inventory. ISO 14064-2 specifies a process and requirements for designing and quantifying a GHG project's emission reductions or removal enhancements. Finally, ISO 14064-3 specifies procedures and requirements for validating

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<sup>21</sup> The terms *validation*, *verification* and *certification* are largely drawn from CDM terminology, but are also used outside this. *Validation* refers to confirming that proposed projects meet the general rules (or standards), mostly with regard to types of projects and that they are “real, additional and verifiable”. *Verification* is the process of confirming the actual performance of projects, i.e. of emission reductions or enhancements of removals by sinks. Based on a verification report, *certification* is the process of calculating the number of ‘credits’ that should be ‘issued’ and producing a report to this effect.

or verifying GHG projects or GHG inventories.<sup>22</sup> Linked to this is the newly released ISO 14065 which specifies accreditation requirements for organisations offering validation, verification and certification services.

## **Registries**

In the formal Kyoto system, units are issued by national registry systems (or a CDM registry) that are designed to be fully contained and robust. Each unit has a unique electronic serial number. The national registries track the movement of units between accounts within individual registries, and as units move from one registry to another. While these movements of units generally reflect changes of ownership as units are 'traded', the registries are not trading platforms where buying and selling of units occurs. However, trading platforms (such as electronic exchanges) and registries are expected to become electronically linked in some manner, so as to facilitate the settlement of buy-sell contracts.

The overall design of the registry systems ensures there is no chance of bogus units entering the system or 'double counting' of units within it. Moreover, when units are used to match emissions, i.e. the process of confirming compliance with commitments, the units are *retired* permanently and are no longer 'live'. Units can also be *cancelled*, meaning they are no longer 'live' but also that they have not been used for compliance purposes (see earlier discussion in section 3).

Currently, the voluntary carbon market has no such system for dealing with the 'credits' that are generated by offset projects. This has led to concerns about 'dodgy units' and double counting – e.g. the credits from the same project being sold to more than one buyer.

In response to this concern, there are now some moves to create registries for units in the voluntary carbon market. The German independent certifying body TÜV SÜD have set up a certificate database called BlueRegistry. This database creates an independent platform designed to provide background information on the origin of VER+ credits and to avoid double selling. In New Zealand, the "TZ1" carbon trading platform being developed by the New Zealand Exchange will also have an associated electronic units registry, similar in nature to a formal Kyoto national registry.

A question sometimes arises as to what term, *retire* or *cancel* would be more correct to describe the final use of a unit in a voluntary carbon market registry. To be consistent with the use in compliance market registries, it would be better to use *retire* at the point where the unit has been acquired by the party wanting to offset their emissions (and hence 'comply' with their voluntary commitment). This ensures that the unit is just used once for this purpose.

A possible use of a *cancellation* account in a voluntary carbon market registry would be if a unit was to be transferred from one voluntary system to another, where there was no electronic link between registries. The unit could be cancelled in the first registry so that it could be reissued in the second and not create a double counting concern. Another possible use of a *cancellation* account is if a unit, once issued, needs to be removed for the system – for example because the action leading it to be issued was found to not have occurred, or the action has somehow been reversed (such as a forest being burned down or harvested).

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<sup>22</sup> However, there are not yet guidelines for auditor competencies, so strictly speaking no one can be certified as being compliant with the requirements of the ISO14064 standards.

## **5. CONCLUDING REMARKS**

It is reasonable to expect that a highly credible voluntary carbon market system can be implemented in New Zealand. This would include a number of 'building blocks' put in place by relevant expert groups in the private sector. The key 'blocks' to help ensure credibility and integrity are:

- 'Carbon footprint' calculators that are relevant for use by industry, institutions, businesses and households, and that are **user friendly, consistent, accurate and updated regularly**<sup>23</sup>;
- The use of a methodology for determining what constitutes '**proper**' offsets, such as that proposed in section 3 of this paper;
- The use of recognised international standards for offset projects and activities, including for their *validation* (as being "real, additional and verifiable") the *verification* of performance, and the *certification* of the associated voluntary market units;
- The use of validators, verifiers and certifiers that have been accredited to relevant ISO standards; and
- A robust electronic registry system (which, where possible, has been certified to be of equal robustness to official national registries under the Kyoto compliance system).

While all of these 'blocks' can be put in place by the private sector, some government oversight is probably necessary. For example, it would be helpful for emission factors used in footprint calculators to be standardized. And there are other issues implicit in the above bullet points that may suggest the need for some guidance/regulation. This oversight could sit under the jurisdiction of climate change regulations. Alternatively, given the importance to consumers of credibility in this market, it might potentially sit under consumer protection legislation.

With such an overall system in place, New Zealand institutions, firms and households that are interested to pursue 'carbon neutrality' could have assurance that their carbon footprints will be able to be estimated accurately<sup>24</sup> and any 'carbon offsets' elements in their overall plan are credible....and can be seen to be credible by other parties.

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<sup>23</sup> Depending on the methodologies used in carbon calculators, they can be more or less accurate in terms of their estimation of actual emissions. For example, a tool that uses actual litres of petrol purchased will be more accurate than one that just asks users to estimate how many miles they have driven and applies a generic vehicle efficiency factor to calculate fuel consumed. Another key issue is the use of appropriate emission factors that derive, e.g., CO<sub>2</sub> emissions from consumed electricity or petrol. These emission factors can change over time for key energy commodities as technology or fuel specifications change.

<sup>24</sup> Moreover, if they chose, such footprint estimates can also be certified by accredited verifiers.