

## THE MEANING OF *CARBON NEUTRALITY* INSIDE JURISDICTIONS WITH 'CAPS'

*Paper 4 in a suite of discussion papers exploring the compatibility and credibility of the Voluntary Carbon Market working within the 'space' of sectors and countries that are covered by the Kyoto Protocol*

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### **BACKGROUND AND CONTEXT**

This series of analytical policy papers sets out key relevant issues that are now apparent through the current debate about the role, if any, for the voluntary carbon market in sectors and countries covered by the Kyoto Protocol, a cap-and-trade emissions trading scheme that has given rise to an international compliance carbon market. The series of papers also 'puts up' a set of propositions. The purpose is to stimulate informed and objective discussion with a view to begin to converge the debate towards outcomes that may be accepted by the majority of the carbon market community of regulators and private sector players.

Papers 1-3 covered, in particular, the importance of the voluntary carbon market in the big picture of climate change mitigation and why, with some conditions and caveats, as a general rule it is both credible and beneficial to have voluntary carbon market activities in sectors and countries covered by compliance emissions trading schemes. In short, at a fundamental level, these papers challenge a common-held view of some that "it is not OK because of double counting".

This Paper 4 moves on to broader issues surrounding *carbon neutrality* occurring inside compliance capped jurisdictions such as the Kyoto Protocol (or the upcoming US RGGI and WCI state-based cap and trade schemes<sup>1</sup>). It also takes up the "some conditions and caveats" point above where we agree that having voluntary carbon market activities inside capped jurisdictions would be problematic.

#### ***Broader understanding of the "Problem Definition"***

The debate about double counting has mostly centred around the credibility of so-called "carbon offsets" which are tradable carbon units that consumers can buy to offset the emissions that they are unable to avoid. In Papers 2 and 3 we showed that to test the logic of the concern about double counting, it was important to think about this in the broader context of the "abate or buy" decisions by what we called *carbon neutrality aspirants*. Using the example case of energy efficiency measures in homes and buildings in a given community, we demonstrated that no matter whether this decision was to abate or to buy, the outcome in terms of the compliance situation of the country was identical – the country's emissions would be lowered, thereby freeing up compliance emissions units that the country could use to cover other emissions or sell to another country.

We posit therefore that, with respect to this consequence, the abate or buy decisions of the *carbon neutrality aspirant* must be equally credible, and that universally applying the 'double counting' (not credible) tag onto the buy decision is neither logical nor warranted.

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<sup>1</sup> RGGI is the Regional Greenhouse Gas Initiative in 10 NE States. WCI is the Western Climate Initiative in 7 western states and 4 provinces in Canada.

However, this credibility issue needs to be taken up in a broader setting. The question can be asked “Who are the judges of credibility and what are their concerns?” One set of judges will be the *carbon neutrality* aspirants themselves. These, for example, may be individuals whose motivations are entirely based on concerns for the planet. Or they may be businesses that are seeking some recognition or market differentiation from their investors or the buyers of their products and services.

Arguably, what has led to concerns about “double counting”, and the emergence of standards to prevent this relate to concerns about *greenwash* and other shonky business practices. False claims and making the atmosphere worse off are the real problems. It is true that some of these are just related to offsets, e.g. that the offset actions didn’t actually occur or that credits from the same actions were sold to multiple buyers. But it is false claims of *carbon neutrality* that seem to be the larger concern that lies at the heart of stories about *greenwash*. And this goes beyond just the offsets portion of a *carbon neutrality* claim. This can be demonstrated by the international work on the ISO 14064/65 series of standards addressing voluntary carbon accounting and offsets, and also the activities by some standards bodies to work on lifecycle carbon assessment standards for commodities and products.

The point, then, is that the credibility question needs to be seen in this bigger context. To illustrate, it is not the purchasing of some offsets by some business selling a *carbon neutral* product that should draw all the attention about the credibility of offsets. Nor is the ultimate judge the supermarket chain buyer choosing to purchase this product and put it on their shelves. The ultimate judge of credibility should be the consumer who is choosing to buy the ‘*carbon neutral*’ product because of their personal preferences. They will want to know the full story behind such claims and/or that any label that has attracted them to the product has a credible quality assurance process that has tested the claims on their behalf.

The viability and credibility of the voluntary carbon market relies on this full chain of trust being forged and maintained. This is a challenging task. Not only is it important that the actions all the way through are fully credible on their own merits, it also requires this to be communicated clearly and accurately to all players in the chain. Moreover, consumers (and regulators who seek to protect their interests) are already sceptical because of past real cases of shonky business practices.

This, for example, is behind the UK DEFRA best practice code that takes the position that the only credible way for consumers to offset their emissions is to buy compliance units and cancel them. This appears to reflect two assumptions: (1) that voluntary units and the activities and processes that underpin their creation are not of sufficient quality per se and, (2) that cancellation is required to avoid double counting. The “cancellation” view has subsequently been taken up by a number of international voluntary standards.

The point, then, is that *carbon neutrality* and the voluntary carbon market has taken some significant credibility ‘body blows’ already. And as paper 1 pointed out, a new emerging view is that “Oh well, it was only really useful before domestic compliance cap and trade schemes are implemented, and as these are now implemented or getting closer in many developed countries why bother investing in the voluntary space”.

Paper 1 took up the issue of why the voluntary carbon market can play a highly useful mitigation role in developed countries, including those with domestic emission trading schemes, and particularly in price inelastic sectors. Papers 2 and 3 disputed the ‘double counting’ argument that underpins the notion that compliance units need to be cancelled if voluntary actions are to be legitimately undertaken and traded inside capped jurisdictions. Instead, these papers showed that voluntary actions can be legitimately undertaken and transacted as tradable voluntary action credits (TVACs) inside compliance sectors. This is because such trade in appropriately designed TVACs will not make the atmosphere worse off (as could be the case in double counting), and indeed such trade will produce an outcome that is no different (atmospherically) to undertaking voluntary mitigation actions that are not traded – actions which are strongly encouraged.

So, after demonstrating that the creation and trade of appropriately designed voluntary actions inside capped jurisdictions is legitimate, the next step is to consider the implications of such trade for *carbon neutrality* claims. The ultimate aim is to facilitate the emergence of a consensus view (at a technical analytical level) among key 'voluntary space' players and regulators, and then communicate this clearly to those in the demand and supply chain.

Why do we feel so strongly that this is a valuable thing to do? Partly, this is already answered in Paper 1's introduction which highlighted the mammoth task confronting developed countries, in the first instance, to radically transform their energy and land-based systems in just a few decades. Turning a blind eye to the need to do this is tantamount to giving up on the climate change mitigation challenge.

More generally though, our goal is to clearly identify every legitimate tool that is available in the climate change mitigation toolkit, and thereby enable *every shoulder to get behind the mitigation wheel*. We believe that the problem of climate change can only be tackled through engaging and incentivizing every willing citizen, corporation and organisation in actions that significantly reduce GHG emissions. In short, bottom-up action is needed to realise such a quantum shift. We believe this can occur by supporting and championing legitimate leadership reflected through the actions of *carbon neutrality* aspirants.

### **Organisation of this paper**

The balance of this paper is organised in a series of mini 'discussion blocks' responding to a series of key questions:

1. What is *carbon neutrality*?
2. What is meant by *compliance space* and *compliance units*?
3. What is meant by *voluntary space* and *voluntary units*?
4. Conceptually, what does it mean to have *carbon neutrality* inside a *compliance space*?
5. What design features allow the voluntary market to credibly coexist with the compliance market (and prevent *double counting*)?
6. Are *compliance units* and *voluntary units* interchangeable somehow?
7. What might *carbon neutrality* mean to points of obligation in the compliance space?
8. What are other *carbon neutrality* credibility issues?
9. So, in summary, what is OK and not OK?

## 1. WHAT IS CARBON NEUTRALITY?

We italicize the term *carbon neutrality* in this paper for the reason that it is an invented term, without a clear meaning per se. As with the meaning of “sustainably harvested,” “organic,” and “free range,” *carbon neutrality* will eventually gain meaning through definitions that develop in quality assurance standards. We hope that this paper will assist in the defining of such standards.

The goal of *carbon neutrality* commonly represents a desire by an individual or firm<sup>2</sup> to ‘neutralize’ their net contribution to global warming. This is set against a backdrop of steadily increasing (net) human-induced carbon emissions to the atmosphere and a consequent rise in atmospheric CO<sub>2</sub> concentrations. The desired outcome of a *carbon neutrality* goal, therefore, might reasonably be seen as the demonstration that one is not contributing to this increase in atmospheric CO<sub>2</sub> concentrations<sup>3</sup>.

The term ‘net’ emissions refers to the fact that greenhouse gases (measured in carbon dioxide equivalents, CO<sub>2</sub>e) enter the atmosphere from ‘sources’ (e.g. emissions), but are also removed from the atmosphere through ‘sinks’ (where a greenhouse gas is absorbed into a liquid or solid form - such as through photosynthesis in plants). The concept of net emissions, therefore, takes both sources and sinks into consideration in a carbon balance calculation and *carbon neutrality* exercise.

There are three basic steps usually taken in a *carbon neutrality* exercise:

1. **Measurement:** Define a project boundary and measure the carbon footprint within that boundary over a given period (e.g. one year) with a view to understanding the *carbon neutrality* abatement challenge in the subsequent period(s).
2. **‘In-house’ reductions/removals<sup>4</sup>:** Reduce net emissions within the project boundary as much as possible. This can be achieved by reducing emissions from sources, and (sometimes) sequestering carbon dioxide in sinks (if there are sinks such as growing forests inside the project boundary).
3. **‘Ex-house’ reductions/removals:** Pay for *real, verifiable and additional* (meaning they weren’t just going to happen anyway) reductions/removals outside the project boundary to be undertaken on your behalf by someone else. The balance between Steps 2 and 3 reflects the “abate or buy” decision fundamental to the operation of emissions trading, and is usually based on the relative costs of the two.

The external reductions/removals are commonly called ‘carbon offsets’ and are generated by the external activities and purchased by the *carbon neutrality* aspirant in the volume required to neutralize the aspirant’s emissions footprint. These carbon offset units cannot be on-sold by the *carbon neutrality* aspirant if they want to use these units for their *carbon neutrality* purposes. So they are ‘nullified’ by *retiring<sup>5</sup>* them in a secure voluntary unit registry.

The relationship and proportionality between in-house and ex-house mitigation can be depicted schematically as in the example in Figure 1 below, reproduced from paper 3.

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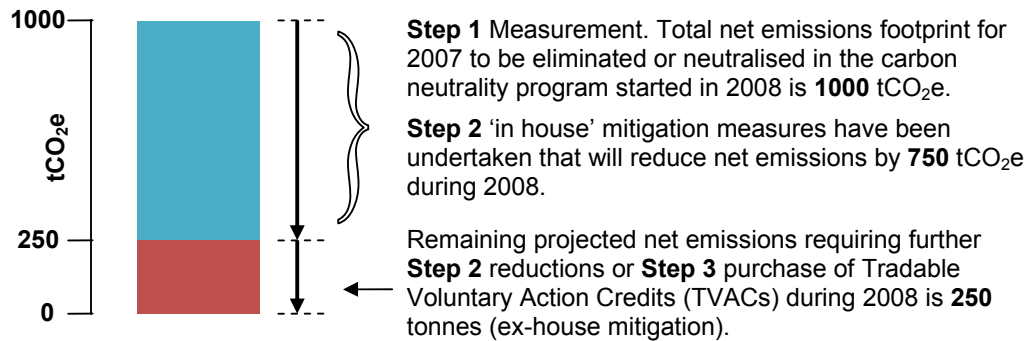
<sup>2</sup> The term ‘firm’ here is used in a generic sense to mean firm, organisation, institution etc, i.e. can include bodies such as local and regional governments

<sup>3</sup> Of course, it is also possible to go beyond ‘*carbon neutrality*’ and into a ‘net carbon sink’ condition.

<sup>4</sup> For purposes of this paper the term ‘reductions’ refers to ‘emission reductions’ and the term ‘removals’ refers to ‘enhanced removals’ given that such removals need to be enhanced beyond what nature would do anyway.

<sup>5</sup> The term *retire* is taken from the lexicon of compliance emissions trading, wherein Points of Obligation have to *retire* units equal to their emissions to be in compliance. The electronic registry systems of compliance schemes have *retirement accounts* for this purpose.

**Figure 1. Carbon neutrality example through ‘in-house’ and ‘ex-house’ activities**



The three step process illustrated here is a simple and conceptual description of a *carbon neutrality* program. However, *carbon neutrality* is not as simple as this 3 step model may make it seem. But this model provides a useful basis for the more complex issues that will be taken up in later sections.

One general point is that a critical part of Step 1 is the setting of the *boundary* within which all measurements are undertaken. This can be both a physical/operational boundary (e.g. a home or building or multiple operational sites of a given firm) and what is referred to as an “emissions scope” boundary. Scope 1 emissions are direct emissions, e.g. from the combustion of fossil fuels within the physical/operational boundary. Scope 2 emissions are indirect emissions from the use of electricity within the physical/operational boundary that leads to emissions of CO<sub>2</sub> at power generation plants. Scope 3 emissions are other indirect emissions that occur outside the physical/operational boundary but which are influenced by the *carbon neutrality* aspirant’s activities and decisions, although are not directly (or entirely) within their control.

It is common in setting overall boundaries that Scope 1 and Scope 2 emissions are included, and some amount of Scope 3 emissions are included. The fact that this is a choice that will depend on the individual circumstances of the *carbon neutrality* aspirant is one reason why there can be no one single definition of what *carbon neutrality* means. It depends on what is covered.

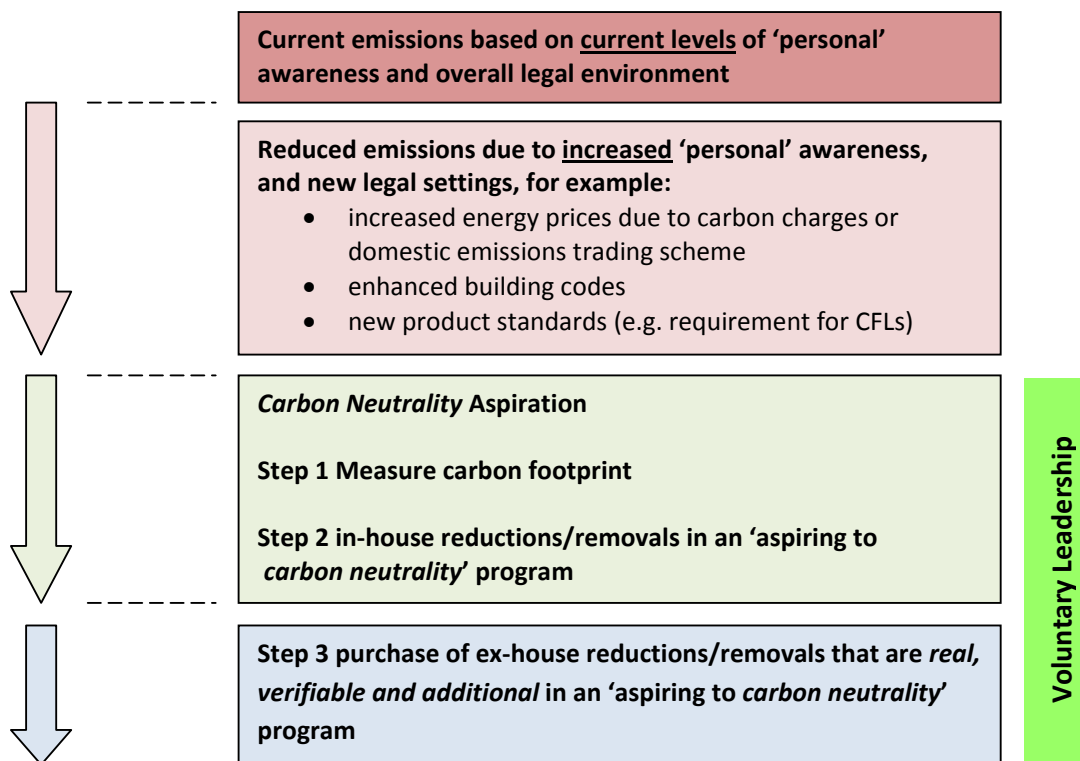
**Carbon Neutrality and Leadership**

The above 3 step model describes *carbon neutrality* in a simple mechanical sense. However, people’s views of claims of *carbon neutrality* seem to involve quite subjective judgments, expecting some demonstrable sense of leadership, of going beyond the norm. This is partly because *carbon neutrality* has now become a label used to exemplify good behaviour of some form, where this good behaviour is both voluntary and beyond what is simply required by law.

As we note in the introduction, it is our view that the world needs to encourage voluntary leadership that results in voluntary actions to reduce emissions (and enhance sinks) that are credible, and go well beyond business-as-usual. In this light, we consider the emergence of *carbon neutrality* ‘aspirants’ and formal *carbon neutrality* programs as being refreshing and hopeful, given the struggles that have confronted formal intergovernmental efforts to control greenhouse gas emissions. *Carbon neutrality* efforts can be seen as an example of bottom-up ‘people power’ transcending geopolitical boundaries. This amounts to voluntary ‘over-compliance’ initiatives.

As a way of establishing a set of ‘First Principles’ for *carbon neutrality* to help sort through the complexities presented in this paper, one may begin with a progressive continuum of individuals’ and firms’ emissions performance as depicted below in Figure 2.

**Figure 2. Voluntary *carbon neutrality* ‘leadership’ within a continuum of mitigation action**



The task begins with a set of domestic legal obligations and a starting point of awareness, motivation, and action for voluntarily moving towards a low carbon economy. This is followed by a second stage characterised by enhanced awareness, motivation, and action at the personal and the government (legal) level (i.e. what one would expect to occur without additional positive financial incentive). Beyond this (i.e. even lower emissions) lies the community of *carbon neutrality* aspirants who undertake their own carbon accounting and footprint measurement (Step 1), followed by two stages of abatement (Steps 2 and 3). Each of these steps drives overall emissions progressively lower.

Note that in Step 3 the ex-house activities must be ‘real, verifiable and additional’ in order to qualify as carbon capable of entering the carbon market as units that can be generated (created) and sold. ‘Additional’ refers to the fact that these activities would not have happened anyway, and in particular, would not have happened without the financial support of the carbon revenues generated from selling these units. This principal of ‘additionality’ is central to project-based carbon market activities. This principle becomes particularly important when considering the credibility of Step 3 ex-house activities included in claims of *carbon neutrality*.

On the basis of the continuum presented in Figure 2, a set of ‘First Principles’ requirements for *carbon neutrality* can be summarised as:

1. Voluntary mitigation action beyond any binding obligations (without this there is no leadership)
2. Measurement to ensure the action is real and verifiable (subject to third party audit)
3. In-house and ex-house reductions/removals are through credible activity types (subject to third party audit)
4. Monitoring and re-measurement to verify outcomes

The credibility of activity types associated with First Principles 3 and 4 then needs clarification in the development of a set of 'Second Principles' to guide the quality assurance process. These Second Principles can be summarised as follows:

- **Leadership should be evident.** A quest for *carbon neutrality* (and the reputation/brand benefits that go with this) must go well beyond just doing what is legally required through standards and codes, and what might be expected of individuals and firms as “rational economic agents” in the face of legally imposed carbon price signals.<sup>6</sup>
- **It should be demonstrably clear that actions (and their results) are occurring that would not just have happened without this leadership.**
- **Nothing should be acceptable that results in the atmosphere being worse off.** This is primarily an issue of appropriately matching the emission that one is seeking to neutralise with the voluntary mitigation actions taken to achieve this. (So, for example, if you live in a country under the Kyoto cap, driving your car less to neutralise an upcoming overseas flight does not qualify.....see later discussion.)
- **Double counting should be identified where it truly may occur and be prevented through robust 'system rules'.** But we need to differentiate between *double counting* (in its various forms) and examples of double, or multiple, beneficiaries of single actions that are acceptable in a robust system.

While all this may seem a bit doctrinaire and prescriptive, the point is that *carbon neutrality* should not be arrived at lightly. If it were, it will have little value and not be reflective of leadership and may even be unhelpful for the atmosphere. Moreover, if it becomes something that is bestowed with a 'light brush', this devalues all others who have been rigorous in their pursuit of this 'brand'.

This does not mean that *carbon neutrality* should only be achievable through significant cost (or pain). Indeed, the inherent emissions trading mechanism evident in Step 3 is about lowering costs. This is a good thing. In short, we believe that *carbon neutrality* aspirants should be seen as displaying true leadership and be 'put on a pedestal' when their goal is achieved. But the exercise should not just be possible by wealthy and professional elites in society. **The point is about bottom-up engagement** and providing a way for individuals to take up the climate change challenge. Not all *carbon neutrality* aspirants will arrive at the *carbon neutral* goal (but most will arrive at a lower carbon destination if they put any effort into the task. Moreover, some milestones (or stars system) should exist to measure the journey. A 'hero or zero' calibration is not helpful to the bigger issues at stake.<sup>7</sup>

## 2. WHAT IS MEANT BY COMPLIANCE SPACE AND COMPLIANCE UNITS?

The use of the term *compliance space* (or *compliance carbon space*) denotes a jurisdiction that is covered by a cap on greenhouse gas emissions and where a cap-and-trade emissions trading scheme is in operation. By “jurisdiction” this means both countries and sectors.

The main *compliance space* case that is relevant to this paper series is the Kyoto Protocol, which has been ratified by all developed countries except the US. There is a cap on emissions over all

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<sup>6</sup> This is certainly the case for this stage in history. As a low carbon economy develops in future decades it is likely (and hopeful) that carbon neutrality becomes a norm, and where voluntary leadership becomes redirected and more focused on things that are currently not technically or economically feasible.

<sup>7</sup> This raises an interesting question concerning the binary nature of the carbon neutral concept, compared with a sliding scale of quality assurance standards commonly incorporated into voluntary policy mechanisms (such as energy efficiency ratings for appliances). This may well be taken up by future *carbon neutrality* standard bearers who may see reason to define milestones along the path to *carbon neutrality* and incorporate these into some form of reward (label) for partial action.

these countries that has been in effect since 1 January 2008. The Kyoto Protocol covers a 'basket' of six main greenhouse gases from virtually all sectors. There are two key exceptions. Emissions from international aviation and marine bunker fuels are not included in the accounting system. And the coverage of emissions and removals from the land use, land-use change and forestry sector (LULUCF) is quite partial, and in some cases is optional and so depends on what countries elected to have covered.<sup>8</sup> In addition the LULUCF sector operates outside the emissions cap and provides credits (or debits) that add to (or subtract from) the cap.

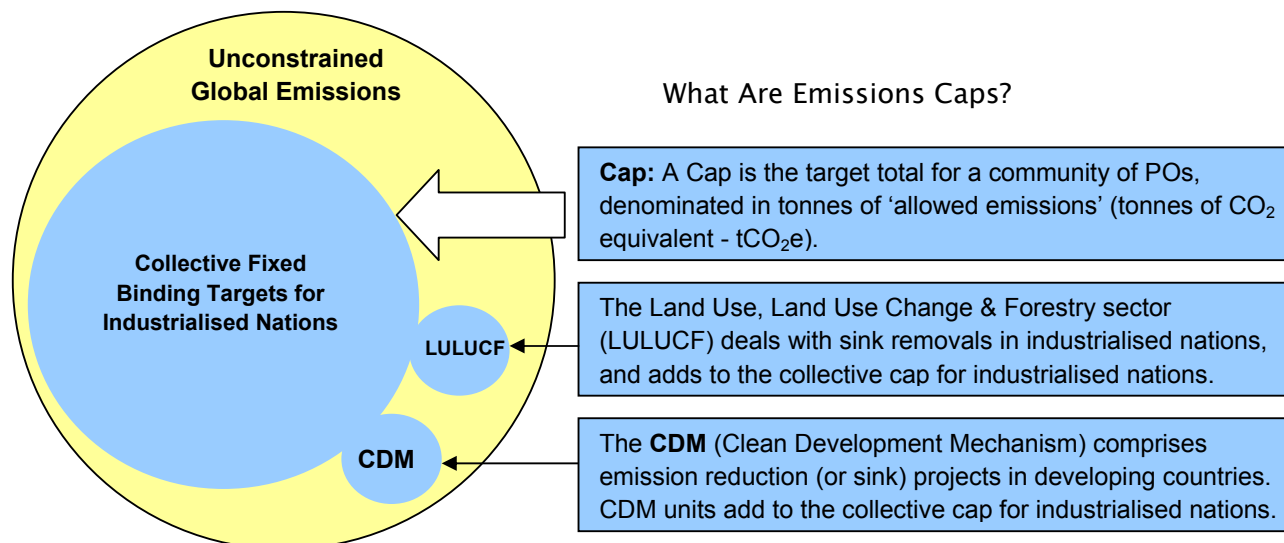
All developed countries that have ratified the Kyoto Protocol sit under the collective intergovernmental Kyoto 'emissions cap'. This cap represents the sum of the targets (or allowed emissions) of all these countries. It is about 58 billion tonnes of CO<sub>2</sub>e emissions over 2008-2012.

It is not just the cap that is important. It is because the Kyoto Protocol also allows countries (and entities within countries) to trade these 'allowed emissions' with others inside this capped environment. This is called international emissions trading. The units of trade are called *assigned amount units* (AAUs) and countries are allocated these at no charge in the quantity represented by their Kyoto target.<sup>9</sup>

**When the Kyoto agreement was reached, the outcome on the atmosphere was pre-established.** This is the total Kyoto cap of 'about 58 billion tonnes' of greenhouse gas emissions over 2008-2012. Countries have legal obligations under Kyoto, individually and collectively (through the emissions trading mechanism). At the margin, when the overall system is sitting on the point of compliance, emissions in one place mean reductions need to be taken somewhere else. Emission reductions somewhere mean that emissions are allowed somewhere else. The system is designed to converge on collective compliance (meeting a collective emissions reduction target that is lower than business-as-usual) at least overall cost.

Figures 3 and 4 below (taken from the *Leaders Guide to international emissions trading and carbon markets*, Ward, M and Weaver, S, 2008) depict the Kyoto Protocol and emissions trading. Note that "POs" are points of obligation (i.e. those with binding targets), in this case the countries with binding targets under the Kyoto Protocol.

**Figure 3. The Architecture of the Kyoto Protocol**

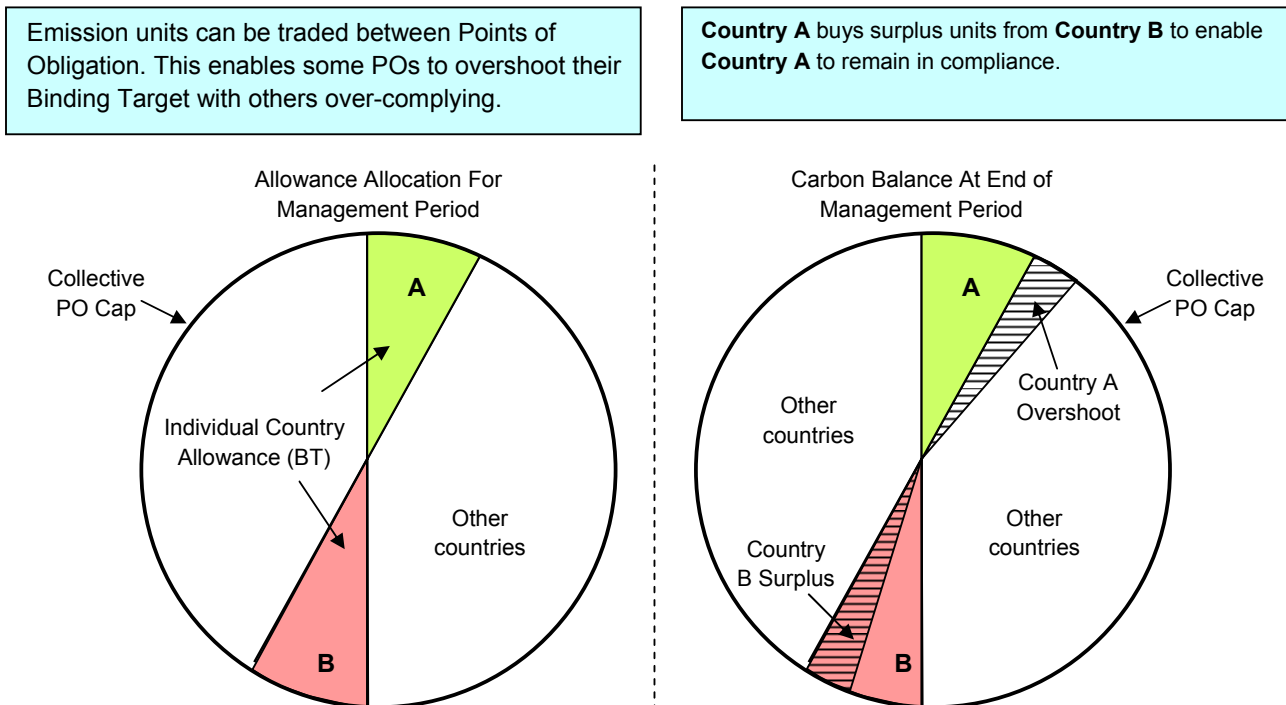


<sup>8</sup> Article 3.3 of the KP covers the activities of afforestation, reforestation and deforestation since 1990 and is mandatory. Article 3.4 covers the activities of forest management (of pre-1990 forests), cropland management and grazing land management since 1990 and is voluntary.

<sup>9</sup> For EU countries this is their individual 'EU burden sharing' target.



**Figure 4. International emissions trading**



A critical point to understand, and one that is at the heart of much of the discussion in this paper series, is that **whatever individuals, households, or firms do or don't do inside these countries, does not change this pre-set environmental outcome.** While it may seem that we have a direct 'personal' connection to the atmosphere, in fact a fuller 'at the margin' analysis will show that this is not the case. (We take this concept up later in discussion below.)

A common misconception is that countries are supposed to meet their Kyoto targets to be in compliance. This is not correct. Given the emissions trading mechanism (which was deliberately provided to lower the costs of compliance), countries' targets can be seen as an initial grandparented amount of allowed emission units.

The actual compliance obligation for countries is that they are required to have enough emission units at the end of the commitment period to 1:1 match their emissions over the period. In practice, these units must be placed in a *retirement account* in the countries' national units registry. Countries therefore have to continuously manage two things over the commitment period – reduce their emissions and buy or sell emission units (as applicable). If they have excess units at the end of the period they can sell them to another country that needs them or carry them over for use in the next commitment period.

In addition to the about 58 billion AAUs in the system at the beginning of the Kyoto period, there are two sources of extra units: (1) Carbon credits from qualifying LULUCF activities in developed countries, and (2) Carbon credits from projects in developing countries under the Clean Development Mechanism (CDM) – that are assessed as being *real, verifiable and additional* through an elaborate CDM institutional process. These two extra sources are collectively expected to add about 4-5 billion units to the compliance total of 58 billion units (i.e. expanding the collective cap to 62-63 billion units). While these units all have different names (AAUs, RMUs and CERs) they all are equal units for compliance purposes in the Kyoto system – so generically are called *compliance units*. In the hands of a Point of Obligation they each represent a right to emit one tonne of CO<sub>2</sub>e.

Separate from this Kyoto system, there are cap-and-trade emissions trading schemes also planned to be implemented in the US – the RGGI and WCI schemes. These will each create a

unique *compliance space* covering their specific 'Points of Obligation' communities and have their respective *compliance units*.

In addition, nested within the overall *Kyoto compliance space* are some domestic emissions trading schemes, e.g. the EU ETS, NZ ETS and upcoming Australia CPRS. These create sub-level *compliance spaces* covering a specific subset of sub-national ('entity') Points of Obligation and *compliance units* of their own. But for the purposes of the discussion in these papers, all such sources are already covered by the *Kyoto compliance space*.

### **3. WHAT IS MEANT BY VOLUNTARY SPACE AND VOLUNTARY UNITS?**

In simple terms, the *voluntary space* (or *voluntary carbon space*) represents a space (or marketplace) where activities occur that are separate from any government/compliance/regulatory requirements. It exists because individuals, households, firms and organisations voluntarily choose to participate. The driver of demand for voluntary units in this space includes voluntary aspirations for (a) *carbon neutrality* and/or (b) corporate social responsibility (CSR) and/or (c) straight philanthropy.

The *voluntary space* can be seen as one that transcends geopolitical boundaries (just as the operation of multinational corporations and global markets can do) or as existing within specific countries that don't have compliance obligations. There is no general rule or definition to this "space". There is, however, some sense of order and conformity brought to this space by voluntary standards such as the ISO 14064/65 series, the WRI/WBCSD Greenhouse Gas Protocol and a range of other standards put out by various organisations.<sup>10</sup> The purpose of these standards has been to provide a measure of quality assurance in a similar fashion (and for similar reasons) to the quality assurance infrastructures of the compliance space.

The term *voluntary unit* is a general term for tradable carbon units (often called *carbon offsets*) created through voluntary carbon market activities. There are a number of names given to voluntary units depending on the specific voluntary carbon market standards they are aligned to. In this series of papers we have used a new general term *tradable voluntary action credits* (TVACs) when talking about voluntary units resulting from *voluntary mitigation actions* (VMAs).

Because the *voluntary space* has no pre-set boundaries per se, it can exist in the same *compliance space* jurisdictions (covered by some regulatory cap-and-trade scheme), but is a 'game' played by non-Points of Obligation and with different rules.

### **4. CONCEPTUALLY, WHAT DOES IT MEAN TO HAVE CARBON NEUTRALITY INSIDE A COMPLIANCE SPACE?**

Any sub-national entity (e.g. individual, household, firm, local government organisation) that aspires to *carbon neutrality* does so either:

- (i) Within a country that is not covered by a binding emissions cap (e.g. a developing country, or a developed country/state that has not ratified the Kyoto Protocol), or
- (ii) Within a country that is covered by a binding emissions cap (e.g. a developed country that ratified the Kyoto Protocol<sup>11</sup>).

With respect to (i) above, carbon neutrality Step 2 and Step 3 activities in these countries involve a direct relationship between the *carbon neutrality* aspirant and the atmosphere.

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<sup>10</sup> For example, the Voluntary Carbon Standard (VCS) from The Climate Group/ IETA/WBCSD; the VER+ Standard from TÜV SÜD; the CarbonFix standard; the CCB standards from the Climate, Community and Biodiversity Alliance

<sup>11</sup> Soon, certain states in the USA will be subject to regional compliance cap-and-trade schemes, and so this issue will also apply to them but at the inter-state rather than the international level.

With respect to (ii) above, things get more complicated:

- a. The country will measure any voluntary emission reductions and sink removals (from Kyoto-covered LULUCF activities) by carbon neutrality practitioners in its official carbon accounting system.<sup>12</sup>
- b. The country will then use these reductions/removals to assist it to meet its compliance target.
- c. If the country gets into a position of over-compliance with its national target, pursuant to the rules of intergovernmental emissions trading under the Kyoto Protocol, it can sell surplus compliance units to other countries that have under-complied with their compliance obligations. This can include compliance units 'generated' by all voluntary activities undertaken by non-POs in sectors covered by compliance accounting (e.g. energy, transport) whether such activities are traded or not (including steps 2 and 3 of voluntary carbon neutrality projects). This will provide another country with the opportunity to emit the equivalent volume of emissions reduced/removed by the firm's carbon neutrality activities, and thereby undo the net gain to the atmosphere initially generated by the voluntary *carbon neutrality* activities.
- d. Alternatively, if the country remains in a situation of under-compliance, all voluntary activities undertaken by non-POs (including steps 2 and 3 of voluntary *carbon neutrality* projects) will enable the country to avoid purchasing compliance units from other countries by the same volume of emissions reduced/removed by the voluntary *carbon neutrality* activities. The voluntary *carbon neutrality* effort by an individual, community program, or firm will thereby also help the government's compliance effort. And the compliance units the country hasn't had to purchase internationally will be available to others in the Kyoto system and allow them to emit more, just as in c.

In these situations, therefore, ***carbon neutrality activities undertaken inside the compliance space cannot generate a direct and absolute effect on the atmosphere***. They can, however, have a relative effect as a contribution to a country's compliance target, and a wider contribution to the collective target by all countries covered by a global cap. This is a crucial point and one that is not always understood by those unfamiliar with the details of intergovernmental compliance trading (perhaps including most *carbon neutrality* aspirants).

So where does this fact leave us? It seems paradoxical that the aspirations of individuals, community groups, and firms who would like to show climate change leadership through voluntary *carbon neutrality* programs are thwarted (in terms of their desired 'relationship' with the atmosphere) because they happen to live inside a jurisdiction that has agreed on a collective binding target (that is very far from carbon neutral) and an emissions trading relationship with other jurisdictions, with trading designed to help these jurisdictions meet their collective target at 'least cost'.

Their efforts to neutralise their carbon footprint just end up enabling another country (or entity within another country) to under-comply with their own compliance target by the same volume of emissions reduced/removed. The effect of this is simply to shift the location of emissions rather than neutralising emissions in any one place.

If, on the other hand, the *carbon neutrality* aspirant is located in a country that is not covered by a binding cap (e.g. a developing country, or a state in the USA not covered by a state-level cap-and-trade system), then this situation doesn't occur, because there is no emissions trading system that would catch those emission reductions/removals in a compliance inventory and trade them at the inter-government level.

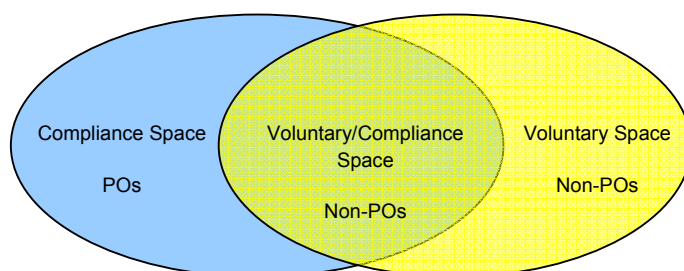
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<sup>12</sup> This is for reductions/removals covered by the compliance carbon accounting system (i.e. sectors and activities covered by this compliance system)

This can all seem to be very disempowering of the very leadership actions that should be championed, especially in industrialised countries with their very carbon intensive lifestyles and economies. Moreover, **it seems completely inequitable if firms and individuals in countries that have not agreed to any targets in multilateral climate agreements can then stake moral claim to ‘true’ carbon neutrality because their direct relationship with the atmosphere is unimpeded by intergovernmental emissions trading mechanisms.** Surely, all individuals and firms showing leadership by voluntarily reducing their emissions, and paying others in their community to also do so, should be recognised equally for these efforts, no matter where in the world they are located. Such leadership should transcend geopolitical boundaries.

We conclude that *carbon neutrality* can therefore **not** be required to pass a test of an absolute effect on the atmosphere. What is required is the demonstration of a neutral net carbon footprint within the project boundary locally. As we see it, the easiest way to conceptually deal with this conundrum is to see the *voluntary space* and the *compliance space* as generally existing in two separate universes. Where they overlap (the “**voluntary/compliance**” space in Figure 5), the voluntary dimension exists as a “black box” capable of resulting in compliance grade outcomes, but where the currency transacted as a means of maximising this voluntary action (a particular grade of voluntary carbon units designed for this purpose) is non-fungible with (and therefore invisible to) compliance currencies. There are, however, certain conditions upon which the credibility of such trading depends – particularly in relation to the appropriate matching of emission types and offset types. These are taken up in the following sections.

**Figure 5. The intersection of the compliance and voluntary space**



*The ‘voluntary/compliance’ space is the space we are paying closest attention to in these papers. This space is covered by compliance accounting but the actions to reduce emissions (including tradable voluntary actions) are undertaken by non-POs and are hence voluntary.*

## **5. WHAT DESIGN FEATURES ALLOW THE VOLUNTARY MARKET TO CREDIBLY COEXIST WITH THE COMPLIANCE MARKET (AND PREVENT *DOUBLE COUNTING*)?**

### ***Match of voluntary units to the emissions they are being purchased to ‘offset’.***

Even in countries covered by the Kyoto cap (i.e. generally within the compliance space), some voluntary mitigation actions by *carbon neutrality* aspirants will occur in sectors not covered by compliance accounting. The key example is international aviation and maritime bunker fuel use. The carbon footprints of many *carbon neutrality* aspirants will include an international air travel component, for example. Another example is those activities of the LULUCF sector that are covered under Article 3.4 of the Kyoto Protocol (management of pre-1990 forests, croplands and grazing lands) but where the country elected not to include this in their Kyoto accounting (e.g. New Zealand and Australia).

Why does this distinction matter? It is because an incorrect matching of Step 3 voluntary units to the footprint emissions they are ‘offsetting’ can lead to the atmosphere being worse off. This violates one of the ‘Second Principles’ set out in section 1 **Nothing should be acceptable that results in the atmosphere being worse off.** This will happen if the voluntary mitigation actions (traded as TVACs), intended to offset emissions in sectors outside the compliance accounting

system, come from activities that are covered by compliance accounting. An example might be an attempt to offset international air travel emissions (voluntary space) by buying voluntary units created through a voluntary energy efficiency program (voluntary/compliance space).

The reason arises from the situation presented above in section 4. These ‘offset’ actions inside compliance space do not in fact lower emissions to the atmosphere. But emissions occurring outside of the compliance accounting system will absolutely increase emissions to the atmosphere.

If one key goal of appropriate matching of emission types with offset types is to avoid making the atmosphere worse off, then (at a low resolution – i.e. in very general terms) we can see the implications of different matching scenarios:

	<b>Offsets inside the compliance space</b>	<b>Offsets outside the compliance space</b>
<b>Emissions inside the compliance space</b>	(A) Outcomes don’t add to compliance outcome at the intergovernmental scale but atmosphere not worse off ✓ <b>Appropriate matching</b>	(B) Added absolute benefit to atmosphere because ‘inside’ emissions matched with absolute offset ✓ <b>Appropriate matching</b>
<b>Emissions outside the compliance space</b>	(C) Increased net emissions to atmosphere because emissions absolute but offset not absolute x <b>Inappropriate matching</b>	(D) Net emissions to atmosphere neutral because absolute emission matched with absolute offset ✓ <b>Appropriate matching</b>

The voluntary market design feature needed to solve the potential problem of inappropriate matching of emissions and offsets, is to have two clearly distinguishable classes of voluntary units. One class of voluntary units would be assigned to voluntary mitigation actions (VMAs) undertaken inside the sectors covered by compliance accounting (Class 1 Voluntary Units), and another class (Class 2 Voluntary Units) for VMAs undertaken in countries or sectors not covered by compliance accounting. Class 2 units would be appropriate, for example, to cover emissions from international aviation and maritime bunker fuels (scenario D above). But Class 1 units would not be appropriate (scenario C). Note, however, that the reverse ‘mismatch’ (scenario B above) does not cause any concerns for the atmosphere. In fact the atmosphere gets an absolute benefit.

In addition, it should be transparent in any *carbon neutrality* claims what class of voluntary units has been used to offset the residual footprint net emissions – and these net emissions must also be described so it is clear whether they fall inside or outside compliance accounting. This way both the consumer of “*carbon neutral*” products and those involved in trading voluntary units can easily see what atmospheric (or compliance) outcome is being transacted.

### ***Preventing real “double counting”***

In our view the term “double counting” can be seen as generally problematic because it can have multiple meanings, and as such, has come to mean quite different things to different people. Often, but not necessarily always, it carries a value-laden connotation of something that is illegitimate and that should somehow be prevented. This is why in Papers 2 and 3 we set out the logic as to why a VMA occurring inside the compliance space should not be seen as leading to “double counting” just because it also assisted the country meet its compliance commitments. We distinguished between *double* (even multiple) *beneficiaries* from a single action which can be fully credible (legitimate), compared with something called *double counting*, which is not legitimate

Examples of what we would see as real “double counting” (not legitimate), and design features to prevent these, are:

- (i) The attempt by a VMA project developer to create and sell voluntary units for the same tonne reduced/removed to two (or multiple) buyers in the voluntary market.

This can be prevented by a requirement for units to be issued in robust and fully transparent voluntary unit registries and units to be serialised and fully traceable.

- (ii) The attempt by a *carbon neutrality* aspirant to create and sell voluntary units from their Step 2 'in house' reduction/removal actions.

This can be prevented by voluntary unit registries requiring a confirmation by a qualified third party verifier that the underlying VMA for which voluntary units are to be created was not undertaken by a *carbon neutrality* aspirant and used by them in Step 2 of their program. Such units need to be generated from those not seeking *carbon neutrality* but who are happy to undertake real, verifiable and additional voluntary mitigation action because the carbon finance from the sale of TVACs can be used to achieve these additional reductions/removals.

- (iii) The attempt by a project developer to receive compliance units from a government regulator (e.g. from a domestic projects scheme if such a policy exists<sup>13</sup>) and for the same tonnes reduced/removed also seek to have voluntary units created for sale in the voluntary market.

This can be prevented by voluntary unit registries requiring a confirmation by a qualified third party verifier that the underlying VMA for which voluntary units are to be created has not also received compliance units for the same tonnes reduced/removed under some compliance projects scheme.

- (iv) The attempt by a Point of Obligation in a compliance scheme (countries under Kyoto or entities under domestic ETS regimes) to seek to have voluntary units created for sale in the voluntary market for their reduction/removal actions when they also directly benefit for these tonnes reduced/removed in the compliance scheme.

This can be prevented by voluntary unit registries requiring a confirmation by a qualified third party verifier that the underlying VMA for which voluntary units are to be created has not been undertaken by (or on behalf of) a Point of Obligation in a compliance ETS regime that will also directly benefit from these tonnes reduced/removed in the compliance scheme.

Part of the underpinning logic in cases (iii) and (iv) for why this should be seen as double counting, and hence prevented, is that the basic test of *additionality* would not be met on the voluntary market side. In both cases, the underlying reduction/removal effort is receiving the full marginal value per tonne that exists in the compliance market. If these actions are undertaken, they must already (financially) be "worth doing anyway".

Note that in case (iii) they would also normally be required to pass an additionality test under the compliance projects scheme, so these are made worth doing by the compliance credits they receive. And in case (iv) the Points of Obligation are legally required to meet their commitments "anyway" (i.e. so business-as-usual), either with 'in-house' reductions or the purchase of compliance units.

## **6. ARE COMPLIANCE UNITS AND VOLUNTARY UNITS INTERCHANGEABLE SOMEHOW?**

We have posited above that, in general, the compliance and voluntary spaces should be seen as existing in two separate universes. So, in general, their units should not be seen as being in any way acceptable currency in the other's space. It is clear that voluntary units are not acceptable by the relevant regulators in compliance ETS regimes. And the registry systems in each space will

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<sup>13</sup> Some developed countries have such policies (sometimes called *compliance offsets* schemes) either as part of hosting JI projects or for offsets in domestic compliance ETS regimes.

be fully and robustly self-contained, so there will be no possibility of getting compliance and voluntary units mixed up there.

However there is the possibility that the voluntary space may, in its procedures, recognise certain actions involving compliance units as a way to achieve its objectives. This, for example, is the case if one follows the UK DEFRA Code of Best Practice, wherein they say that those wishing to voluntarily pay to offset their emissions should purchase compliance units and have these units cancelled in compliance registries. This has the effect of an absolute reduction of emissions to the atmosphere because it pulls down the compliance cap by removing ‘allowed emissions’ from the system so they cannot be used for compliance purposes.

Following the logic we set out in this paper:

- A *carbon neutrality* aspirant voluntarily purchasing a compliance unit and having it *cancelled* in a country’s compliance registry is ‘equivalent’ in terms of the effect on the atmosphere to purchasing a voluntary unit stemming from a VMA undertaken in a country or sector not covered by compliance accounting, and having it *retired* in a voluntary registry.
- A *carbon neutrality* aspirant voluntarily purchasing<sup>14</sup> a compliance unit and having it *retired* in a country’s compliance registry is ‘equivalent’ (in terms of the effect on the atmosphere and the fiscal position of the country) to purchasing a voluntary unit stemming from a VMA undertaken in that country in a sector that is covered by compliance accounting, and having it *retired* in a voluntary registry.

While there is some equivalence to these actions, as set out, in either case it can be seen that the physical location of where mitigation activities are undertaken will be different. These locations will also be known in the case of the VMAs and unknown where compliance units are used. It is our view that it will always be better to manage voluntary ‘things’ in the voluntary space. The one important condition is that the voluntary actions are demonstrably real, verifiable, and additional (i.e. pursuant to a credible voluntary market standard, where this credibility is equivalent to quality assurance standards within the managed compliance space).

However, there is a clear economic logic to have *carbon neutrality* aspirants be able to offset their residual emissions with compliance units instead of voluntary units. It is not desirable in either the compliance carbon market or the voluntary carbon market to force individuals or firms to take actions that are higher than the prevailing ‘cost of carbon’ in the compliance market. In the case of *carbon neutrality* and the voluntary carbon market, these are Step 2 reductions or Step 3 offsets. But there may be liquidity constraints in the voluntary market that means Step 3 offsets are in short supply, and thereby become relatively expensive. Having the compliance market as a ‘price backstop’ makes sense – it acts as a price relief valve. The volumes in the relative markets are such that, for the foreseeable future, there will always be a much greater supply of compliance units than voluntary units.

## **7. WHAT MIGHT CARBON NEUTRALITY MEAN TO POINTS OF OBLIGATION IN THE COMPLIANCE SPACE?**

A reasonable starting point is to consider whether Points of Obligation in a compliance trading scheme might seek to become *carbon neutral*? Usually Points of Obligation are chosen because they ‘represent’ large sources of emissions – whether this be countries at the Kyoto Protocol level or entities in domestic ETS regimes. Just complying with their obligations may seem to be challenge enough. So perhaps it’s a moot question and the situation of a Point of Obligation wanting to become *carbon neutral* may not arise. But it’s not as simple as this and a number of issues arise that deserve some careful consideration.

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<sup>14</sup> Note that this is different than when a point of obligation is legally required to purchase and retire compliance units. See section 7.

## ***Governments and carbon neutrality***

One obvious and common situation is where governments of countries with Kyoto targets decide that their government departments should become *carbon neutral* for their internal operations. In this circumstance their departments are not unlike many other organisations, including local governments for example. The one difference is that fiscally they are directly connected to the obligations of the country even though they normally are just a small subset of the country's emissions.<sup>15</sup> But this difference does not seem to present any obvious issues that prevent government departments from showing leadership in their communities and seeking to be *carbon neutral* for their operations.

However, it would not be appropriate for actions in government department operations to be a source of voluntary credits, e.g. from energy efficiency programs in their buildings. This is because of the double counting issue raised in case (iv) in section 5, and the point made above that government departments are directly connected to the fiscal commitments that a government has as the Point of Obligation under Kyoto.

## ***Purchasing compliance units and carbon neutrality***

Points of Obligation in domestic cap-and-trade schemes are required to retire compliance units equal to the emissions for which they are responsible. In the circumstance that they also are *carbon neutrality* aspirants, can any purchased compliance units count as being the same as Step 3 purchases of voluntary units? This notion has been proposed by some who make the argument that if they also have to purchase voluntary units they will be paying for carbon twice.

Through testing this question against the First and Second Principles set out in section 1, we conclude that here is a good example of why the voluntary and compliance spaces need to be seen as existing in two separate universes. In short, compliance unit purchases don't count for a number of reasons. First, there is no evidence of voluntary leadership when all that is happening is firms meeting their legal obligations (by definition "business-as-usual"). Second, the nature of compliance units, representing as they do an *allowance to emit*, are very different than units from voluntary market reduction/removal activities that are tested to be real, verifiable and additional.<sup>16</sup>

Third, we consider the "paying twice for carbon" argument as misconceived on a number of counts. A *carbon neutrality* exercise can be expected to cost more than the costs already embedded in goods and services associated with the legal requirements of climate change policies. Under the Kyoto Protocol framework there will be a cost spread through the respective economies representing the cost to limit greenhouse gas emissions to about 58 billion tonnes. This is a long way from *carbon neutrality*. In Figure 2, the second box includes reductions that can be expected to be undertaken because of the price signals from regulatory policies. But this is before the point at which voluntary leadership of *carbon neutrality* takes up. Moreover, when costs are imposed on Points of Obligation it is most often the case that this is because they can (and should) pass the costs on. When they cannot, this is normally the basis for special compensations of some form, e.g.

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<sup>15</sup> This can be different where governments own major emissions sources, e.g. electricity generation facilities – but in developed countries these are most often in the private sector or 'at arms length' corporatized state organisations that are not included in government department *carbon neutrality* programs.

<sup>16</sup> AAUs do not stem from any reductions activities that have been 'tested' to ensure they are *real, verifiable and additional*. They are simply units representing the initial Kyoto targets, in total about 58 billion tonnes of greenhouse gas emissions over 2008-2012. CER's, while they do stem from a Kyoto Protocol CDM process that has tested them to be *real, verifiable and additional*, occur from activities outside the collective cap. These then add to the collective cap and become another form of compliance allowance, i.e. have an AAU's "allowed emissions" quality. Nothing in the design of the Kyoto mechanisms indicates CERs could be endowed with some additional special quality (and value) associated with *carbon neutrality* claims in the voluntary space.



grandparenting of units. And even the cost passed on to consumers (of for example electricity or petrol) may be mitigated through government revenue recycling. So “paying the first time” may not actually occur in practice, for Points of Obligation or their downstream consumers.

Fourth, there is a strong flavour of “not additional” and “double counting” about the notion that compliance units should count. For a *carbon neutrality* aspirant that is also a Point of Obligation in a domestic ETS regime, it can be expected that, if it is buying compliance units, it is doing this firstly to comply with its legal obligations to provide to the government the number units to cover the emissions for which it is responsible – this is its business-as-usual circumstance. For it to get the “double value” of also saying these units were offsetting residual emissions in its *carbon neutrality* program is a clear example of *double counting*.

The logic here is as follows: If an offsetting provision were not available to *carbon neutrality* aspirants, they would have to further reduce their emissions in-house (i.e. more Step 2 actions). The ability to purchase offsets, therefore, carries an opportunity ‘value’, namely the avoided cost of additional (perhaps rather expensive) Step 2 reductions (e.g. those at the top end of a marginal abatement cost curve). A *carbon neutrality* aspirant seeking to have the single purchase of a compliance unit to serve both its compliance obligations to the government and its *carbon neutrality* program is therefore seeking to get ‘double value’. In our view, this is a real example of *double counting*. However, if the *carbon neutrality* aspirant (that is also a Point of Obligation) was purchasing compliance units and providing these to the government to retire in addition to those it needed to meet its compliance obligations, it would be fully credible for these units to count in its *carbon neutrality* program.

Finally, the notion that *carbon neutrality* can be achieved by doing nothing more than meeting legal obligations completely undermines the whole leadership model, and devalues all the efforts of non-POs that have voluntarily gone through a full *carbon neutrality* program, often at considerable additional cost compared with business-as-usual. If there ever comes a time when it is a legal obligation for firms to have zero emissions (i.e. be *carbon neutral* without offsets), the story will be different. But we seem to still be a long way off from this point from both a policy and technology perspective.

## **8. WHAT ARE OTHER CARBON NEUTRALITY CREDIBILITY ISSUES?**

### ***Cascading carbon neutrality***

The issue here is what happens when a certified *carbon neutral* product or service is sold to a *carbon neutrality* aspirant. Do the *carbon neutrality* efforts of the first party get to be enjoyed again by the second and make their *carbon neutrality* task easier?

This can get complex. It can have the feeling of “double counting” so attract scepticism and unhelpful contentious debate. One way to simplify things is to define *carbon neutrality* boundaries in a way that avoids overlaps as much as possible. In particular, it is the *Scope 3* emissions (as described in the ISO standards and the GHG Protocol) that are where boundaries are usually set.

To illustrate the point with a ‘simple’ example: Firm B is a *carbon neutrality* aspirant that uses courier services (so potentially may include in its *Scope 3* emissions those emissions associated with these courier services). Courier C is a certified *carbon neutral* courier service provider. If Firm B included their mail and courier services in their footprint calculations they would need to decide whether their customers agree that they can reap the benefits of their courier’s efforts in addition to their courier reaping market share benefits for the same actions. Is it legitimate to, in effect, assign zero emissions for these *Scope 3* emissions because their courier offers a *carbon neutral* service Does this situation produce double counting or double beneficiaries?

The double counting question relates to ‘selling’ the same action twice. The *carbon neutral* courier generates their *carbon neutrality* by undertaking Steps 1-3 of a carbon neutrality program (Action 1). The courier then “sells” their carbon neutrality by gaining discerning customers seeking a socially responsible service provider (Sale 1). The customer (Firm B) is a *carbon neutrality* aspirant and uses their courier’s action (Action 1) as a subset of their own footprint calculation. Firm B then achieves *carbon neutrality* more easily because they calculated a carbon footprint that was smaller than had they used a non-*carbon neutral* courier. They then ‘sell’ their carbon neutrality to their customers and gain market share as a result, but this amounts to a second sale of Action 1 (or a portion of Action 1). Firm X is a customer of Firm B and is also a *carbon neutrality* aspirant and calculates a low footprint because they purchased a carbon neutral product from Firm B. They then achieve their *carbon neutrality* more easily because they calculated a carbon footprint that was smaller than had they purchased an equivalent product that was not *carbon neutral*. They ‘sell’ their carbon neutrality by gaining market share (third sale of Action 1) etc... As this scenario demonstrates, the legitimacy of *carbon neutrality* claims becomes rapidly entangled in an ambiguous carbon accounting situation.

One way around this problem is for Scope 3 *carbon neutrality* emissions to be excluded from *carbon neutrality* programs, or for *carbon neutral* goods and services to be treated in a way that enabled their value to be transparently recorded but outside the carbon footprint calculation of downstream *carbon neutrality* aspirants. For example, if Firm B is trying to get a certified *carbon neutral* product onto a shelf somewhere and are concerned about consumers’ perspectives about *food miles* they can choose to use a *carbon neutral* freight service and make a clear declaration in their information disclosure to this effect – i.e. they don’t have to include these Scope 3 emissions in their carbon footprint, but they can still benefit from the voluntary efforts of those upstream and their decision to purchase goods or services from them (commonly at a higher price).

Another particular issue arises with electricity, which is a Scope 2 ‘indirect’ emission that is expected to be included in footprints of *carbon neutrality* aspirants. If it is possible in a given jurisdiction to purchase “green electrons” that are transmitted directly from a renewables-based generation plant, it is appropriate to use a zero emissions factor in footprint calculators. And of course this would be true also for self-generated renewables electricity. The contentious case is what happens when a national grid is involved that has a mix of fossil and renewable sources and where electricity generators sell into the grid and electricity retailers buy from the grid, including so-called *gentailers* who do both but not necessarily with a balance between their generating and retailing.

The point here, is that even if you (the *carbon neutrality* aspirant) purchase your electricity from a renewables-only *gentailer* or retailer (e.g. an intermediary firm that only buys electricity from renewable generators), it is not clear that changes in your electricity consumption translate just to changes in renewables-based electricity. It may be that the national system will always use as much renewables as is generated and what gets adjusted at the margin may be coal fired generation. The concern is that the incentive to reduce electricity use may dissipate if people believe that their electrons come from renewable, “so it doesn’t matter”. This is one of the practical effects of using a zero emissions factor in footprint calculators for electricity use.

For this reason, the convention emerging in leading *carbon neutrality* programs is that, as a first step, it is not appropriate for *carbon neutrality* aspirants to put zero in carbon footprint calculators for grid purchased electricity. They require that a standard emissions factor is used, e.g. a published grid factor for a given country.

It is then at the Step 3 offsets phase that the issue is taken up. An electricity *gentailer* may have gone through a full *carbon neutrality* program and had their electricity certified *carbon neutral*, meaning that for any portion of their sales not covered by their own renewables generation they have purchased voluntary carbon units. If this is demonstrably and credibly the case, the *carbon neutrality* aspirant can then deduct the commensurate number of offsets from the quantity they need to buy. In essence the electricity from this vendor has had its needed offsets pre-purchased.

### ***Packaging voluntary carbon offsets with other products***

The notion that voluntary carbon offsets might be purchased along with common consumer commodities is a generally useful one. This opens up an innovative business opportunity that can lower the costs for *carbon neutrality* aspirants, especially individuals and small businesses. In addition to being able to purchase the voluntary carbon offsets they need from some ‘broker’ in the voluntary carbon market, they may find it convenient to have offsets bundled with other things they commonly buy.

It is feasible for the vendor of any product to provide ‘attached voluntary offsets’ along with their product as part of an associated service offering to the *carbon neutrality* market. For example, a beer company could buy voluntary units and retire a certain number of these in a voluntary units registry for every case of beer they sold. In addition to appealing to the *carbon neutrality* market, this may provide valuable market differentiation to regular consumers.<sup>17</sup>

As long as there was good and full traceability and transparency of what was happening, there is no reason why this isn’t a fully credible market offering. It may be a welcome service to individuals seeking to become *carbon neutral* (and who buy a lot of beer) because it provides them with a very low transaction cost way of buying some of the offsets they need. The burden of proof will probably be seen ultimately to lie with the *carbon neutrality* aspirants to be able to show the source of the offsets purchased in this manner. In turn the service providers (the beer company) will need to be able to show exactly how many offsets (and of what type they purchased) and how these voluntary units were retired as they sold their product.

While ‘beer’ has been used here as the example service provider, this could be photocopy paper, or taxis, or petrol, or natural gas, or electricity from a predominantly fossil fuel generator. The point is, that it opens up an opportunity for many innovative businesses to get engaged in the overall voluntary carbon market. They don’t have to feel the only entry point to becoming active is by themselves going fully *carbon neutral*, which may be beyond their financial capacities.

### ***Can commodities of upstream Points of Obligation become carbon neutral from compliance unit purchases?***

This is a variation of the issue discussed above in section 7 about whether purchasing compliance units could be seen as the same as Step 3 voluntary offset purchases, and automatically bestow *carbon neutrality* status on POs that are required to cover all their emissions with purchased compliance units. On this point, we gave a number of reasons why our answer was No.

In this case, the issue is about whether these purchased compliance units can be considered the same as voluntary units purchased on behalf of downstream customers of their commodities – such as the just-discussed “petrol, or natural gas, or electricity from a predominantly fossil fuel generator”.

We conclude again that the answer is **No**, for essentially the same reasons as why purchasing compliance units does not make Points of Obligation *carbon neutral* (no evidence of voluntary leadership, difference in nature between compliance “allowed emissions” units and voluntary units, non-additional/double counting). Moreover, another way to look at this is whether there is equivalence between the cases of upstream Points of Obligation purchasing compliance units, as they are legally required to do, and commodity product vendors voluntarily buying issued

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<sup>17</sup> For example, it is possible to buy bottled water in the UK and for every litre you buy the water vendor commits to make x litres of clean water available to a village in a poverty and drought stricken region of Africa.

voluntary units and retiring these commensurate with their product sales. In short we see these as completely different.

### ***Cost and credibility***

We view it as a worthy cause to find innovative and easy means to lower the costs for people to become *carbon neutral*, or to neutralise even some of their carbon footprint. The less costly, the less prohibitive it is to engage a large number of people in our communities to think about *carbon neutrality*. The more people, the greater the economies of scale in all VMAs, the more VMA service provider jobs, the lower the costs....at least until the 'low hanging fruit' mitigation opportunities become expended.

A real benefit of this *carbon neutrality*-based voluntary market approach is that low cost mitigation opportunities get 'dug out' at low(er) cost. If this was to be attempted in the compliance market, society would pay for the low cost mitigation opportunities at the higher cost of compliance carbon, or miss them altogether (particularly as many of these mitigation opportunities face economy of scale and transaction cost barriers). In either event, the overall cost for a given amount of domestic mitigation would be higher without the voluntary market.

But this should not come at the expense of credibility, because if confidence in the voluntary market approach is lost and concerns about "greenwash" and "carbon cowboys" takes over, the whole model implodes. That said, there are many examples of durable voluntary mechanisms and infrastructures that have served other sectors for some time now (e.g. sustainably harvested wood products, organic food and beverages, free range eggs).

## **9. SO, IN SUMMARY, WHAT IS OK AND NOT OK?**

As this paper has set out, the *carbon neutrality* project cycle presents a wide range of potential activity types in its Steps 2 and 3 actions. Some of these interact with compliance accounting because these sectors are included in Kyoto accounting (or the upcoming RGGI and WCI). Others do not.

To help sort out and summarise the credibility issues that arise, we depict in Table 1 below a typology of *carbon neutrality* activity types for Steps 2 and 3. The columns define the 'Emission Types' that a *carbon neutrality* aspirant will identify and measure in Step 1, and seek to reduce in Step 2, and nullify in Step 3. The rows define the 'Activity Types' potentially undertaken in Steps 2 and 3 of a *carbon neutrality* program. The colours (green = OK; yellow = possibly OK; red = not OK) show which 'Activity Type' in Steps 2 and 3 are correctly matched with 'Emission Types' to be reduced and/or offset.

The reasoning behind the credible and not credible (OK/not OK) evaluations is provided in the form of detailed notes presented below the table. These supplementary notes, in some cases repeat details covered in the prior discussion in this paper and help to relate the discussion to specific circumstances and credibility concerns.

**Table 1. Appropriateness of actions in *Carbon Neutrality* programs in countries under the Kyoto cap versus the types of (original) emissions to be reduced or offset**

Carbon Neutrality Activity Types		Emission Types of Carbon Neutrality (CN) Aspirant See Note A		
		Kyoto (inside) Emissions covered under 'Kyoto cap' (‘Annex A’ gases and sources)  See Note B	Non-Kyoto (outside) Emissions from International Aviation and Marine Bunker Fuels	Non-Kyoto (outside) Pre-1990 forest emissions where country not doing Art. 3.4 Forest Management See Note C
<b>Key:</b> <span style="background-color: green; color: black;">OK</span> <span style="background-color: red; color: black;">Not OK</span> <span style="background-color: yellow; color: black;">Depends</span>				
<b>CN Step 2 actions</b>	Reduce ‘in house’ Annex A emissions	Note 1	Note 2.	Note 2.
	Reduce ‘in house’ emissions from international aviation and marine bunker fuels	n/a (Note 3)		n/a (Note 3)
	Reduce ‘in house’ emissions from pre-1990 forests (where 3.4 not elected)	n/a (Note 3)	n/a (Note 3)	
	Enhance removals of ‘in house’ pre-1990 forests (where 3.4 not elected)	Notes 4,5	Notes 4,6	Notes 4,6
	Enhance removals of ‘in house’ post-1989 (Kyoto) forests	Notes 4, 4bis	Note 2	Note 2.
<b>CN Step 3 actions (offsets) See Note D</b>	Reduce Annex A emissions (in countries under the cap)	Note 7	Note 2.	Note 2.
	Reduce emissions from aviation and marine bunker fuels	Note 8	Note 9	Note 9
	Reduce emissions from pre-1990 forests in countries under the cap that did not elect 3.4	Note 8	Note 9	Note 9
	Enhance removals of pre-1990 forests (where 3.4 not elected)	Notes 4,5	Notes 4,6	Notes 4,6
	Enhance removals of post-1989 (Kyoto) forests	Notes 4, 4ter	Note 2.	Note 2.
	Reduce emissions (or enhance removals) of any kind in countries not under the cap (where these actions are not part of CDM projects that have generated CERs used for compliance of countries inside the cap)	Note 8	Note 9	Note 9
	Purchase by CN aspirant of compliance units in the capped regime (or use of those received gratis) and providing these to a country in the regime to “retire” (see Note 10)	Note 11	Note 12	Note 12
	Purchase by CN aspirant of compliance units in the capped regime and providing these to a country in the regime to “cancel” (see Note 10)	Note 13	Note 13	Note 13

### **Table 1 Notes:**

- A.** The right hand three ‘columns’ of this matrix represent the three qualitatively different types of emissions that make up the carbon footprint of a *carbon neutrality* (CN) aspirant (this is for CN aspirants located in a country with a Kyoto target i.e. under the Kyoto cap). It is also possible that they may have forests or other land use land use change and forestry (LULUCF) activities occurring within their CN boundary that constitute removals of carbon from the atmosphere within their CN boundary (and accounted for in Step 1). This assessment matrix does not include an analysis of all these potential sources of emissions and removals – except to the extent that CN Step 2 or Step 3 activities are considered in the ‘rows’ of the matrix. But it may provide insights into the principles and logic that would apply if such a fuller assessment was carried out.
- B.** Annex A of the Kyoto Protocol (KP) describes the gases and sources that are accounted for under country targets (i.e. under the cap). In essence, these include all sectors except international aviation and marine bunker fuels, and the land use, land use change and forestry (LULUCF) sector. International bunkers fuels aren’t accounted at all under the KP. LULUCF are selectively accounted but not under emission inventories. Instead they add to/subtract from the cap (see Figure 3).
- C.** Article 3.4 of the Kyoto Protocol covers land use, land use change and forestry (LULUCF) activities other than those under Article 3.3 which covers afforestation and reforestation (planting new forests) after 31 December 1989, and deforestation of (any) forests after 31 December 1989. However Article 3.4 is voluntary, so countries can elect to not account for 3.4. Pre-1990 forests are therefore not covered by Kyoto accounting, unless they are deforested which is captured under Article 3.3.
- D.** Offsets, by their nature, are required to be *real, verifiable and additional*. This requirement is fundamental in all voluntary offsets standards. Any in-principle credible (OK) and not credible (not OK) judgements in Step 3 offsets (in this matrix) are subject to this core requirement. These are determined on a case-by-case basis through following specific methodologies that confirm whether specific activities are real, verifiable and additional (and are quality assured through carbon market standards).
1. Whether this is OK or not depends on whether the CN aspirant is also a point of obligation (PO) in a domestic cap and trade emissions trading scheme (i.e. have a binding obligation to meet an emission reduction target). If they are not a PO, this is OK, no question. But if they are a PO, any such reductions avoid the need for the firm to purchase covering compliance units or allow them to sell compliance units they may have. So it may be seen that these are ‘costless reductions’, raising questions about *carbon neutrality* claims.
  2. It is not OK to mitigate emissions that sit outside the Kyoto cap with actions accounted for inside the cap. The atmosphere does not ‘see’ individual emission reductions (or enhanced removals) inside the cap in an absolute sense as these are counter-balanced elsewhere within the cap through intergovernmental emissions trading (see Figure 4).
  3. These table cells are not applicable (n/a) because the particular Emission Type we are trying to reduce does not match the Activity Type. In other words, if the Emission Type is international aviation, then the Activity Type (reducing emissions) will be international aviation (i.e. doing less of this activity).
  4. If there are forests inside the CN aspirant’s defined boundary (so a “net carbon footprint” is being calculated) these removals would already have been netted off emissions in the Step 1 footprinting. So Step 2 actions would be to “enhance” (increase) these removals. **Note 4 bis.** Why this cell of the matrix is a “depends” is because of the possibility that the CN aspirant may be a PO under a domestic emissions trading scheme (DETS) with respect to their post 1989 (Kyoto) forests (e.g. as may be the case in the proposed NZ ETS). If this is the case, the general issue raised in Note 1 about CN aspirants that are POs might also be seen to apply in the case of these activities. Where CN aspirants are

not such POs, as in Note 1 this is “OK, no question”. **Note 4 ter**. This is the similar situation for Step 3 offsets as described in 4bis for Step 2 reductions. In this case, however, it’s about whether the firm hosting the activity is a PO under a DETS with respect to their post 1989 (Kyoto) forests. Here the issues are also similar to those set out in Note 7 below which describe reductions of emissions that are under the cap, whereas here it is enhancing removals that can fall under compliance accounting.

5. It is OK to match Step 2 actions outside the Kyoto cap (as here with enhanced removals of pre-1990 forests) with emissions inside the cap. These have the additional effect of providing an absolute benefit to the atmosphere. It is the reverse that is not OK, i.e. as set out in Note 2.
6. Step 2 actions that enhance removals in pre-1990 forests are a good equivalent match for these emissions which also are outside the cap.
7. This is similar to the point of Note 1. Whether this is OK or not depends on whether the source of the offset actions is also a point of obligation (PO) in a domestic cap and trade emissions trading scheme. As set out in Note D above, offsets must pass the fundamental test of whether they are “real, verifiable and additional”. If a firm that is a PO reduces its emissions and tries to have these reductions recognised in the voluntary carbon market, e.g. seeks to have voluntary units issued for sale, this will likely be seen as a case of *double counting*. A robust voluntary standard should pick up and prevent this through its requirement for activities to follow methodologies seeking to ensure *additionality*. Put simply, these test to see if the activity was already ‘worth doing anyway’ – in this case because of the opportunity value of reducing emissions, given the firm’s obligations in the compliance emissions trading scheme.

In short, if the ‘firm’ hosting the action is not a PO this is OK. If it is a PO it is most likely “not OK”. Why this isn’t a “categorical No” is that it is possible that some activities may pass additionality tests because it can be shown that the activities were not economic even with the opportunity value of the price of compliance carbon, i.e. they needed the extra value of voluntary units in the voluntary market for the project to proceed. But this is probably getting into a “grey area” in terms of whether this would be seen to be credible or not.

There is also another potential “depends” situation which would most likely be “not OK”. This is similar to the situation of the PO above, where the opportunity value of compliance units comes into play. However, this is in the case (if it were to exist) where a country had a domestic offsets scheme (such as the PRE program in New Zealand in 2003-04) whereby emission reduction projects are provided compliance units by the government (e.g. AAUs or ERUs). It would therefore most likely be “not OK” for *double counting* reasons that any such project should also seek to get voluntary units for the same projects. Again, the reason for this not being a “categorical No” is the same as the PO example above.

8. Similar to Note 5, it is OK to match Step 3 actions outside the Kyoto cap with emissions inside the cap. These have the additional effect of providing an absolute benefit to the atmosphere.
9. These Step 3 offsets occurring outside the cap appropriately match emissions outside the cap.
10. The term “retire” stems from the Kyoto compliance regime and means when emission units are taken out of circulation for the purpose of a country with a Kyoto target showing it is meeting its Kyoto obligations. A country does this by placing units in a “retirement account” in its national registry. Once units are placed in a retirement account they can not ever become ‘live’ again. The term “retire” has now carried over to the voluntary carbon market and has a similar meaning. When voluntary units are placed in “retirement accounts” of voluntary unit registries it means they have been used for the

intended offset purpose by a CN aspirant.

The terms “cancel” and “cancellation accounts” are now also used in both the compliance and voluntary carbon markets. Whereas “retire” means units being used for the purpose of meeting an obligation, the term cancel means that such units are removed from circulation, are no longer ‘live’ and, expressly, can not be used by POs in a compliance scheme or CN aspirants to meet their respective obligations.

11. As with Note 1, whether this is OK or not depends on whether the CN aspirant is also a point of obligation (PO) in a domestic cap and trade emissions trading scheme.

If they are not a PO, this is OK. It is analogous to Step 2 reductions of Annex A emissions in that both of these actions have the effect of helping the country meet its commitments. A Step 2 reduction has the effect of meaning the country has a number of its own compliance units (that it was allocated in its target) ‘freed up’, either to cover other emissions that otherwise may have meant it needed to buy compliance units in the market, or that it can sell to another country if it has excess units. A CN aspirant providing units to the country to retire has the same outcome.

For a CN aspirant that is also a PO in a domestic ETS regime, seeking to have the single purchase of a compliance unit to serve both its compliance obligations to the government and its CN program needs is a true example of *double counting*, so lacks credibility.....i.e. is not OK. However, if the CN aspirant that is also a PO was purchasing compliance units and providing these to the government to retire in addition to those it needed to meet its compliance obligations, these units would be OK to count against its CN program.

12. This situation is analogous to that in Note 2.
13. Similar to Note 9, cancelling units provides a proper balance for offsetting emissions outside the cap (the right-hand two columns of emissions). This is because it has the effect of pulling down (tightening) the compliance cap, meaning a zero-sum effect for the atmosphere. With respect to Annex A gases, this means of offsetting has an effect analogous to Note 5 and 8.