

VOLUNTARY MARKET ACTIVITIES – IS THERE A ROLE IN KYOTO COUNTRIES?

Paper 1 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

With the first accounting period of the Kyoto Protocol having started on 1 January 2008, an active debate is happening in the carbon market community of regulators and private sector players as to whether there is a role for the voluntary carbon market in ‘emissions capped countries’. The Kyoto Protocol is itself a cap and trade emission trading scheme that has given rise to an international compliance carbon market. In addition, many countries with Kyoto targets have implemented, or soon will implement domestic (or in the case of the EU ETS, regional) emissions trading schemes. Accordingly, the emissions-causing activities of many private sector ‘entities’ are now affected in some manner by the international compliance carbon market.

A recent publication called *Leaders Guide to International Emissions Trading and Carbon Markets*¹ describes this interplay of international and domestic compliance carbon markets. In its final section it also introduces the possible interface of compliance and voluntary carbon markets.

In preparation for a possible future similar publication on *Carbon Neutrality and the Voluntary Carbon Market*, this new series of analytical policy papers sets out key relevant issues that are now apparent through the current debate. It also puts forward a set of propositions. The purpose is to stimulate informed and objective discussion in an attempt to clarify the extent to which (and under what conditions) voluntary carbon markets may legitimately interface with the basic architecture of compliance carbon market systems.

The series of five papers is structured as follows:

- This paper (Paper 1) sets out the ‘problem definition’. This encompasses the high level policy issues that present a gap in the coverage and efficacy of compliance markets with respect to domestic abatement, and in turn identify the need for additional instruments necessary to fill this gap. We posit that one potentially key instrument is a voluntary carbon market nested within jurisdictions already covered at a higher (upstream) level by compliance emissions trading schemes.
- Paper 2 SCALING UP VOLUNTARY MITIGATION ACTIVITIES comes at the issue from the ‘other end of the telescope’ and discusses how the voluntary carbon market can play a crucial ‘scaling up’ role by aggregating mitigation activities from the ‘bottom up.’ In doing so, it shows how having the ‘policy tool’ of emissions trading operating at a downstream level in an economy can provide a valuable impetus for increasing the rate and scale of voluntary domestic abatement (i.e. among those with no legal obligation to meet an abatement target).
- Paper 3 VOLUNTARY INSIDE COMPLIANCE – COUNTING AND CREDIBILITY explores the issue of “double counting” with a series of simple scenarios and numeric analyses intended to

¹ Ward, M., and Weaver, S.A. 2008. *Leader’s Guide International Emissions Trading and Carbon Markets*. GtripleC, Carbon Partnership, and The Climate Group (version 1).

tease out the counting issues that lie at the heart of the debate. This seems to be the single most important issue where apparently polarised views have resulted in an inability for the carbon market community to find the common ground needed to move forward.

- Paper 4 THE MEANING OF *CARBON NEUTRALITY* INSIDE JURISDICTIONS WITH CAPS takes up a series of broader issues about how the whole concept of *carbon neutrality* in Kyoto countries can make sense. Among other points, it develops a matrix that forms the basis for an appropriate matching of mitigation actions and emission types, given the complexities of what's covered under Kyoto accounting and what is not.
- Paper 5 THE VOLUNTARY MARKET – OUTSIDE THE COMPLIANCE SPACE finishes the suite of papers with a discussion about voluntary carbon market activities operating outside compliance jurisdictions and compliance sectors.

Vernacular

Given the compounding complexities surrounding this issue we have found it necessary to clarify the language somewhat to avoid misunderstandings.

At the heart of the *carbon neutrality* 'movement' and the voluntary carbon market are *voluntary mitigation actions* that, as we use the term, mean actions taken beyond those that are required by any form of regulatory edicts. These are what people choose to do, not what they have to do. We use the term "mitigation" rather than "emissions reductions," because such actions can also include enhancing CO₂ removals by sinks.

"*Voluntary mitigation actions*" is a general term. The voluntary market involves the circumstance where the actions of one group of 'entities' can lead to a commercially traded commodity, what we call here *Tradable Voluntary Action Credits*, such that aggregated voluntary mitigation actions can be connected to willing buyers of such (aggregated) actions. To ensure the credibility of *Tradable Voluntary Action Credits* (and that buyers get what they have 'bargained' for), they should be created through a reputable and transparent process involving recognised standards that test for the *voluntary mitigation actions* being real, verifiable and additional, and involve qualified third party verification. *Tradable Voluntary Action Credits* is a generic term and is used as a way to avoid confusion with specific units used in the voluntary carbon market (e.g. VCU, VERs).

THE CLIMATE CHANGE MITIGATION CHALLENGE

For the world to have a reasonable chance of avoiding the worst effects of climate change, the challenge is have global emissions of greenhouses gases peak by 2020 and then to reduce them to 50% of 1990 levels by 2050. These goals have been articulated by international science and policy leaders – the second, even by the heads of state of the G8 countries at their recent 2008 meeting in Japan.

For industrialised countries, the challenge is much greater than just the global percentages. Figure 1 below, taken from the recently released report by Tony Blair and the Climate Group², provides an illustrative set of pathways for global emissions and shares of this for industrialised and developing countries.

Lord Nicholas Stern points out in his latest report³, that what the global 50% by 2050 goal means "as a matter of arithmetic" is average global *per capita* emissions of about 2T CO₂e by 2050. Figure 2, also from the Blair report, well illustrates the challenge this presents. One striking point of the mitigation challenge is the urgency of action especially in developed countries, which are the countries that are the focus of this paper's subject matter.

² *Breaking the Climate Deadlock – A Global Deal for Our Low-Carbon Future*, The Climate Group, June 2008.

³ *Elements of a Global Deal on Climate Change*, London School of Economics, April 2008.

Figure 1. Emission pathways towards 450ppm and 2°C

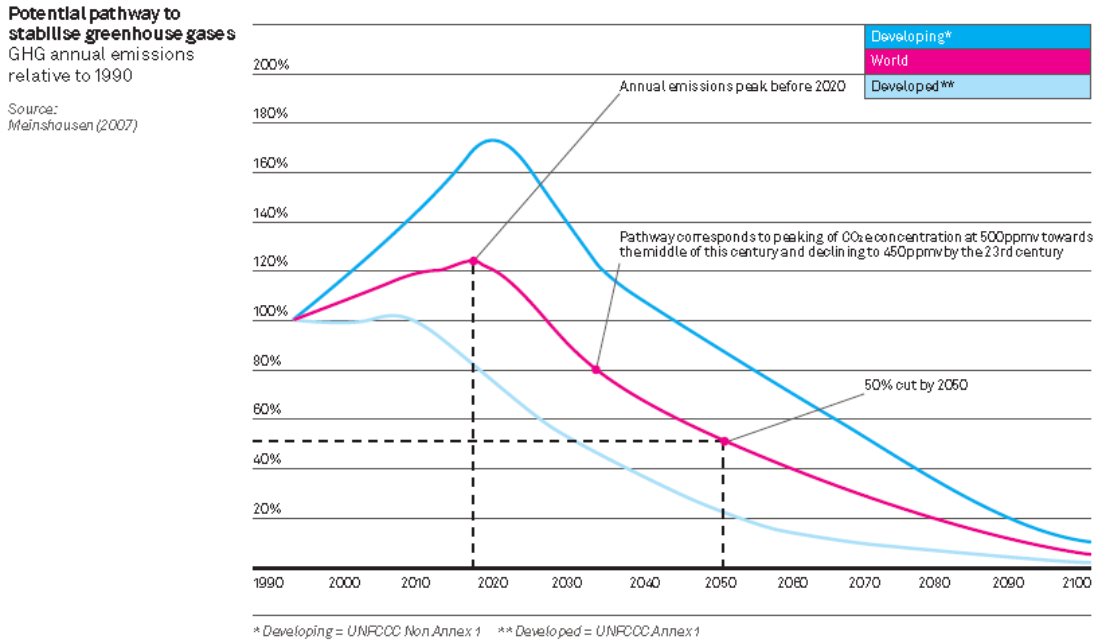
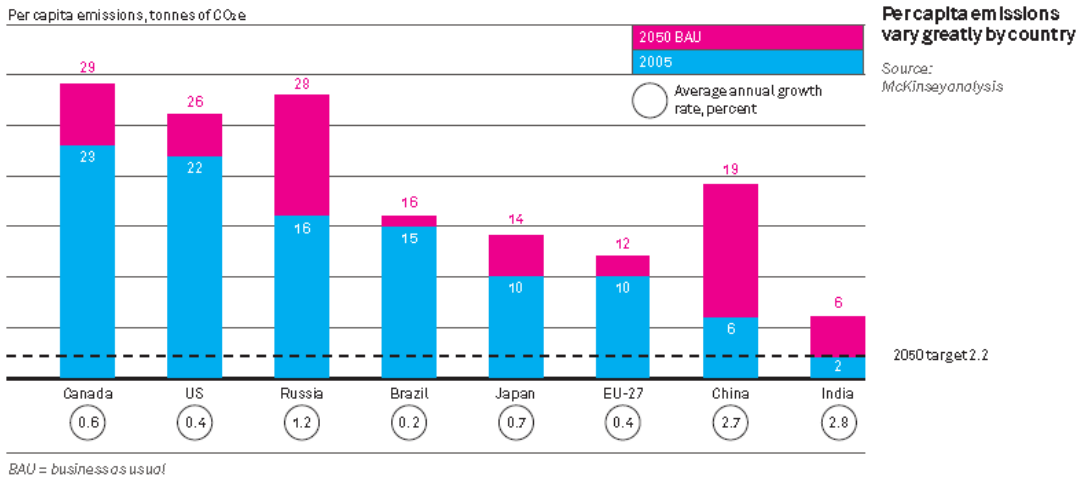


Figure 2. Per capita emissions and trends for some countries

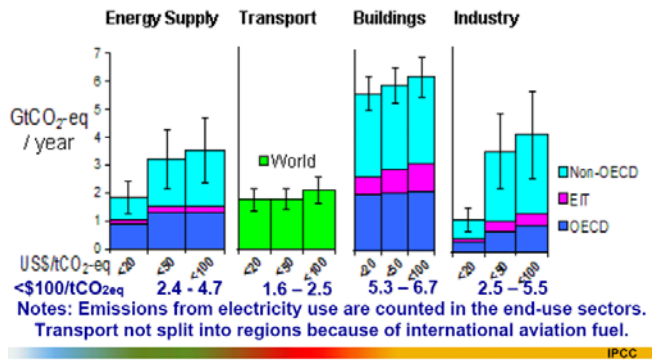


Analysts around the world have looked at the mitigation potential in different sectors, in different countries (and groupings of countries) and at different estimated abatement costs. The key issue relevant to the subject matter of this paper is around the mitigation potential of demand side measures in the energy sector, both stationary energy (houses, buildings etc) and 'mobility' energy (personal and commercial transport).

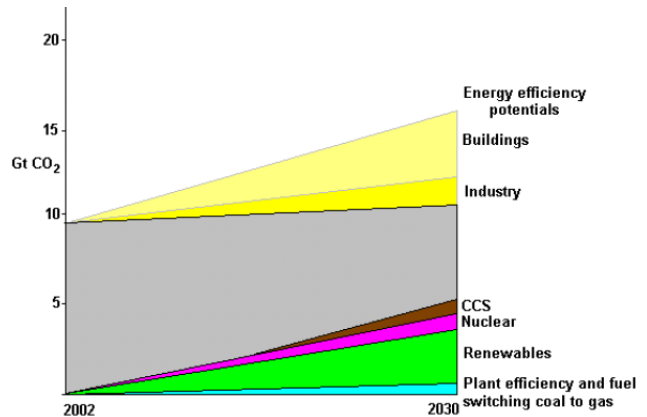
How important is this in the big picture of climate change policy and global warming? In short, it is crucial. This is clearly demonstrated in the following graphs taken from the IPCC Working Group 3's contributions in the IPCC Fourth Assessment Report (2007).

Figure 3a, 3b. Abatement potentials in the energy sector by 2030

Sectoral economic potentials above the baseline by 2030 as a function of carbon prices of US\$20, 50 and 100 / t CO₂ -eq.



CO₂ emission reduction potentials in the electricity sector under US\$ 50 per tonne CO₂



The key relevant point of these two graphs is that the mitigation potential on the energy demand side, especially in buildings and transport, is a very significant portion of the global mitigation potential that policies focusing on the next two decades are seeking to ‘make happen’. As noted above, it is during this period that global greenhouse gas emissions need to peak and begin to decline.

It is crucial, therefore, that countries implement (or encourage) very effective policy programmes in their energy sectors.

POLICY TOOLS THAT WORK.....ARE?

A key question that is central to our topic is whether regulated cap and trade emissions trading schemes and the carbon markets they engender, in and of themselves are a sufficient policy instrument for these portions of energy sector emissions. Many experts would say “No.” There are a range of reasons for this, but two key reasons are worth noting in detail:

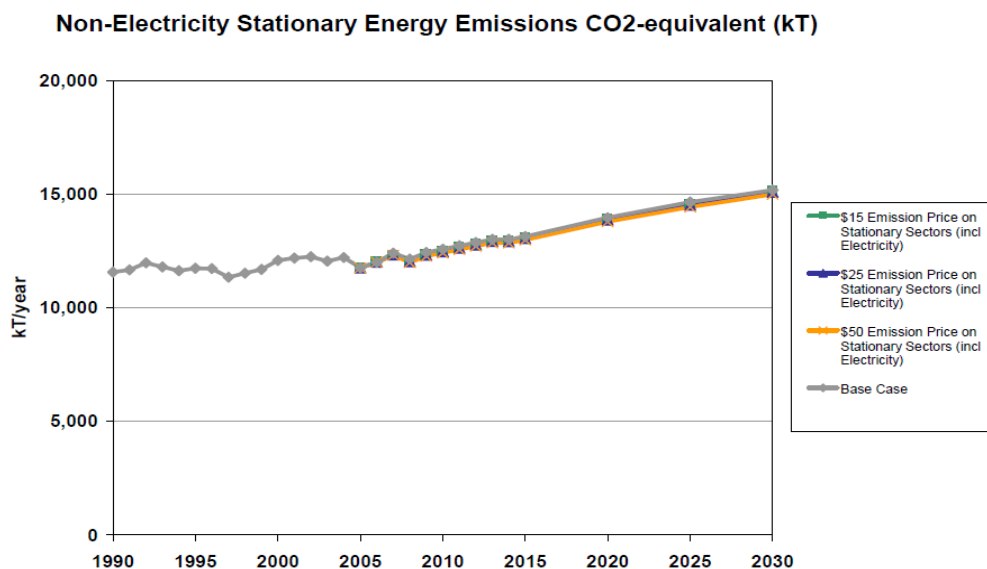
- Both buildings and transport represent sectors where emissions are caused by ‘billions’ of decisions by ‘millions’ of individuals. It is not uncommon, therefore for emissions trading schemes to leave these sectors out, and instead focus on larger ‘point sources’ of emissions as the points of obligations (POs) in domestic emissions trading schemes. The EU ETS, for example, does not currently cover the transport sector. Nor does it cover direct energy emissions in buildings, unless there are central heating systems of a large enough size to be above its emissions threshold. (It does however cover electricity from major fossil-based generators.)
- Even if buildings and transport are covered in a domestic compliance emissions trading scheme (e.g. as they will be in the New Zealand ETS), the POs are upstream of the buildings and transport systems, and the downstream effect is merely a carbon price signal (reflected through an increase in energy prices). This is also the case for electricity in the EU ETS. To the energy end-user, the effect is little different than if a carbon charge (tax) had been used instead of an ETS.

Some degree of response on the demand side is expected from these price increases. But there is much empirical evidence that this is likely to be small due to inelastic demand in these sectors. Indeed, government estimates for this demand side response are small. Some information from New Zealand is provided in Box 1 below to illustrate the point. But this is likely to be relatively typical of many developed countries.

BOX 1. NZ CASE STUDY: THE NZ ETS AND THE COMPLIANCE CARBON MARKET

The following figures from recent official publications graphically demonstrate what level of emissions reductions are expected to happen in the face of carbon pricing. Figure 4 is for stationary energy (not including electricity generators).

Figure 4. Impact of Emissions Pricing on Non-Electricity Stationary Emissions⁴



NB: Stationary Energy includes energy used by residential, commercial and industrial customers (but not transport energy). 'Commercial' refers to non-industrial business, government, and institutional facilities, such as retail stores, offices, hotels, schools, and hospitals.

In the source document text associated with the graph in Figure 4 the Ministry for Economic Development (MED) note:

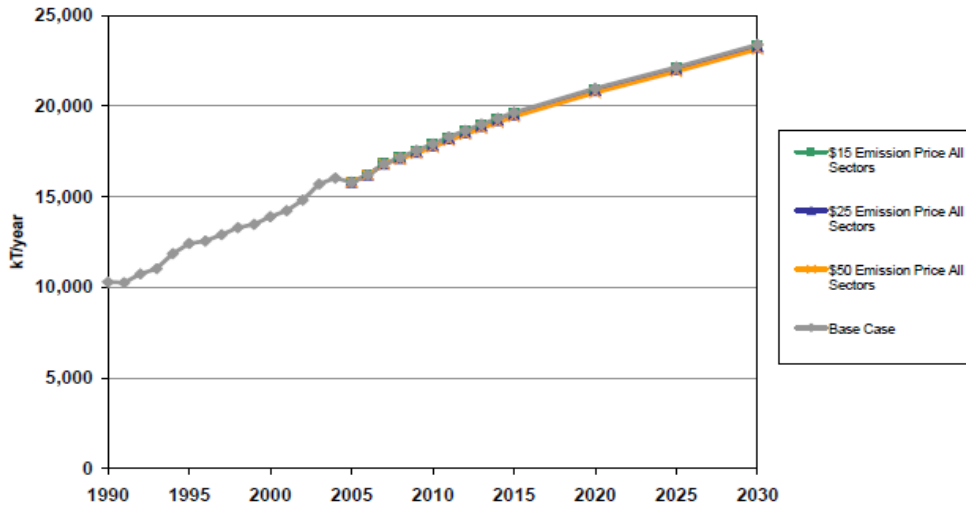
- *"...we have assumed relatively low price elasticities of demand and cross-price elasticities between fuels for residential, commercial, and light industrial users. In other words, energy users have a strong tendency to simply pay higher prices and continue consuming as before when energy prices rise by moderate amounts. These relatively low elasticities are consistent with the international published literature for commercial and industrial customers. Residential customers also have low energy demand elasticities, based on MED's own modelling of residential energy demand.*
- *" (this) figure shows that the impact of emissions pricing on non-electricity stationary emissions is quite small. For example, with a \$50/tonne CO₂e emissions price emissions in the year 2020 would be reduced by about 0.2 million tonnes, or about 1.3% compared to the Base Case.*

The equivalent graph for the transport sector is show below in Figure 5. In this case MED similarly note:

- *" Given the low price elasticities of transport fuel demand, combined with the relatively small expected change in transport fuel prices due to emissions pricing, emissions pricing in transport, at least at the levels considered here, results in only small reductions in fuel demand and emissions."*

⁴ Source: *Benefit-Cost Analysis of the New Zealand Energy Strategy*, MED (2007).

Figure 5. Impact of Emissions Pricing on Transport Emissions

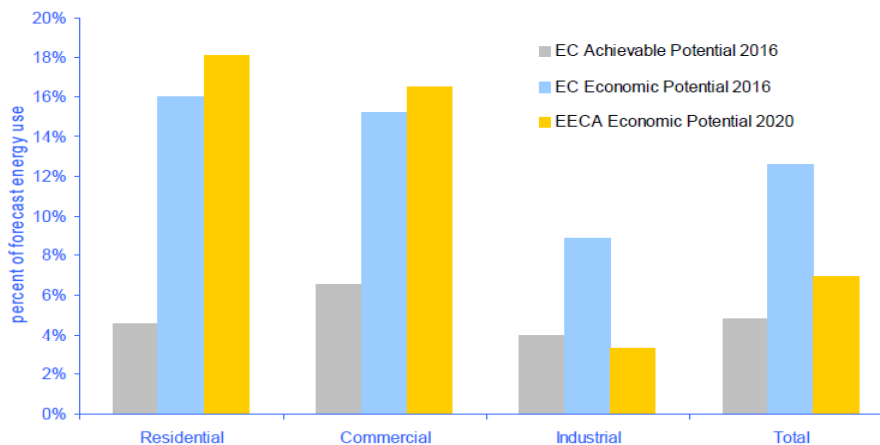


In short, what Figures 4 and 5 show is that there is only a very minimal expected response to carbon pricing through the NZ ETS – at prices in the range of NZ\$15-50 per tonne CO₂ anyway.

Figure 6 below provides similar insights from a different direction. It shows estimates of achievable and economic potentials for energy efficiency in buildings from studies undertaken by the New Zealand Electricity Commission (EC) and the Energy Efficiency and Conservation Authority (EECA). The economic potential represents the mitigation potential that expert analysts assess is available and should, in theory, be economic for energy users to undertake. The achievable potential represents what they are likely to undertake.

The big gap between *what is economical* and *what is achievable* reflects the (limited) behavioural change that has been achieved in the past, as consumers have been faced with price increases.

Figure 6. Potential for energy efficiency improvements in New Zealand⁵



⁵ Source: *Synthesis of the Analysis of the New Zealand Energy Strategy*, MED (2007).

GENERAL MESSAGES ABOUT THE EFFECT OF 'TOP DOWN' COMPLIANCE MARKETS

Our intent in raising these issues is not to denigrate the value of emissions trading as a policy tool. On the contrary, we are firm advocates of emissions trading and carbon markets. The value of the innovation of emissions trading is to enable a collection of "players" to meet a more stringent collective mitigation target by allowing mitigation activity to occur where it can do so at least cost. Then individual players can analyse their marginal mitigation costs and use this analysis to

- a. mitigate 'in-house' where these costs are relatively low, and
- b. where these costs are relatively high they can buy someone else's mitigation (generated at low cost elsewhere).

This creates an incentive for additional mitigation actions to happen wherever they can occur at relatively low cost. This is because additional mitigation actions (that would not otherwise have occurred) can be undertaken and then "sold" to buyers who would not have undertaken more costly mitigation actions 'in-house' due to cost barriers. Accordingly, we advocate maximising the accessibility of the gains from trade arising from emissions trading frameworks.

However, it is important to recall that the compliance carbon market is an innovation that typically has relatively few "players" in any country (i.e. only the points of obligation). The gains from trade are only available to points of obligation in a compliance carbon market. All entities that are not points of obligation (which is the majority of entities in an economy) are excluded from using this tool in a regime allowing only compliance trading.

Moreover, as the detail in Box 1 sets out, top down price measures such as carbon charges and cap-and-trade ETS (with upstream points of obligation) that just send price signals downstream can be expected to have limited success in eliciting domestic demand side mitigation. By themselves, such upstream instruments do not create the necessary downstream market conditions for the aggregation of voluntary mitigation activities.

Such mitigation activities are voluntary because these downstream entities (SMEs, households and individuals) are not points of obligation. While their payment of the carbon price is not voluntary, the mitigation measures resulting from behaviour change are. Should the carbon price margin be insufficient to motivate behaviour change (in price inelastic sectors), the predominant net effect of a compliance carbon market is to enable upstream points of obligation to gather up money and use it to buy compliance units. One of the reasons that demand side mitigation potential often exists only in textbooks and 'wishful thinking' policy documents, is that they assume that millions of small actions (that in theory seem to be cost-effective) will get done in practice.

But they don't, and this is well documented in retrospective studies in developed countries worldwide.⁶ This reality is an ongoing dilemma for the energy policy community. What energy policy experts now better understand is that transaction costs and capacity constraints commonly pose a significant barrier to what would appear to be cost effective actions. In particular, these include a range of 'search costs' (information, contractors, finance, etc) as well as things such as economy-of-scale costs and financial negotiation power (of contractors fees, finance etc).

A key mechanism for overcoming these barriers is **aggregation**. This involves engaging the interests of 'natural aggregators' (e.g. private sector entrepreneurs) who can bundle together large numbers of individual potentials into programmes that can substantially increase the occurrence of voluntary mitigation action being taken. This is not 'rocket science', or necessarily new or innovative thinking. Indeed some countries have had some success with targeted demand side action involving aggregated programmes. But typically these are just government-led initiatives. And often they are quite budget constrained and subject to uncertainty about long term programme commitment.

⁶ For example, recent global abatement cost curves reported by McKinsey show a very substantial mitigation potential is available at negative cost.

A BOTTOM-UP CARBON MARKET

Enterprising private sector aggregators, encouraged by the market-based incentive that a carbon market provides, can inject an otherwise untapped source of motivation into voluntary mitigation action and behaviour change. This can have the effect of scaling up these demand side mitigation opportunities that would otherwise be lost due to transaction cost barriers.

One way that this could happen is if governments with Kyoto targets (and corresponding grandparented AAU allowances) offer compliance units to private sector aggregators as the incentive for their *real, verifiable and additional* actions. These would be similar to activities undertaken in other countries under the Kyoto CDM or JI mechanisms. But the focus would be domestic mitigation. However, while this potential exists in theory, only a very few governments in developed countries seem to be interested in this form of compliance carbon policy tool.

Meanwhile, in most industrialised countries there is a growing movement of individuals and firms undertaking *voluntary mitigation actions* for a range of reasons. For individuals it is normally out of concern about climate change and a desire to take personal action. For firms and organisations it can be similarly altruistic or additionally for commercial brand differentiation such as through *Corporate Social Responsibility* (CSR) reporting or *carbon neutrality* programmes.

This voluntary action 'space' (occupied by downstream entities that are not points of obligation) provides the basis for a commercial voluntary carbon market to emerge that is capable of enabling the private sector (rather than government) to provide the driving force for up-scaling and aggregating voluntary mitigation action. In theory this form of voluntary carbon market has the ability to engage individuals, households, small-medium sized businesses and organisations such as local government bodies, in ways that top down price policies (tax and upstream ETS) never can.

Moreover, voluntary carbon neutrality programs result in 'entities' getting a detailed knowledge of their '*carbon footprints*' (and what causes footprints). Such programs can also provide mitigation opportunity information resources targeted to interested people and create the demand for the actions that underpin tradable voluntary action credits.

In short, 'top down' price-based measures without equivalent (and equivalently effective) complementary measures simply do not connect with entities in the 'bottom-up' way achievable by carbon neutrality programmes and the voluntary carbon market. As such, we argue that emissions trading is a tool that should be made available beyond merely the relatively small group of players in the compliance market system. Accordingly, we believe it should be available for use among all businesses, households and individuals as a means of harnessing the creative energy and innovations of entrepreneurs across the board.

The question that must be asked is "Can developed countries achieve the levels of domestic mitigation action urgently needed **in the absence** of such voluntary 'bottom-up' engagement of their publics and businesses?"