Functionality in the international carbon reduction project market

A briefing paper

by

Point Carbon Advisory Services

For
New Zealand Emissions Trading Group
October 2007

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The competencies of our staff include international and regional climate policy; mathematical and economic modelling; forecasting methodologies; methods for expert evaluation and energy industries analysis.

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1. Issues raised with the carbon offset project market

1.1. Introduction

The international carbon market refers to the regulated greenhouse gas emissions markets created under the UN Framework Convention on Climate Change in the light of the entry into force of the Kyoto Protocol in 2005.

The Kyoto Protocol provides for several flexible mechanisms that enable the trading of carbon credits. Those mechanisms are:

- Clean Development Mechanism – where tradable carbon credits are awarded to projects to reduce greenhouse gas emissions that are hosted in developing countries and that complete a formal approval process. These credits are known as Certified Emissions Reductions (CERs);
- Joint Implementation – where the credits are awarded to similar projects, only they are hosted in countries with targets under the Kyoto Protocol, namely developed countries or those with economies in transition. These credits are known as Emission Reduction Units (ERUs);
- Emissions Trading – intended as a government-to-government market where the sovereign states can buy or sell credits they are issued as part of their cap under the Kyoto Protocol, known as Assigned Amount Units (AAUs).

The project-based mechanism to reach the greatest level of development is the Clean Development Mechanism. In the first half of 2007, Point Carbon's transaction database recorded 1.2 billion tonnes of carbon dioxide equivalent (1.2bn tCO2e) in the first six months of 2007. This estimate includes the EU emissions trading scheme, the markets in Kyoto's clean development mechanism (CDM) and joint implementation (JI) credits as well as the non-Kyoto markets found in Australia's New South Wales and the voluntary Chicago Climate Exchange.

Of the total volume figure, trades in certified emissions reductions (CERs) under the Kyoto Protocol's Clean Development Mechanism reached an estimated 370 Mt CO2e in the first half of 2007, with an estimated value of €4.1bn.

These CERs represent a reduction in greenhouse gas emissions reductions of CO_2 or equivalent since the scheme began. However, media investigations have led to issues being raised with regard to the veracity of the CDM projects. This report considers the grounds for those criticisms and evidence of improvements made to the system.

1.2. Background

Demand for CERs awarded to CDM projects is dominated by companies in the European Union emissions trading scheme, project developers and emissions trading houses, European and the

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Japanese governments and international financial institutions, all of which are responding to the demand for project credits created by the Kyoto Protocol.

A minor other source of demand is the voluntary sector, where companies and individuals do not face regulated caps on their emissions but voluntarily seek to offset their emissions by acquiring carbon credits. It is a minor but growing segment of the market which has increasingly focussed on CDM projects.

As the voluntary offset market involves the general public and companies seeking a green profile, it is a highly visible market segment. Media investigations by the Financial Times, New York Times, Business Week and the UK's Channel 4 into the actors in the CDM and the projects being awarded CER carbon credits have raised concerns over the veracity of carbon offset projects.

In this briefing paper, we set out the issues raised and consider the causes for them, before examining the evidence of improvement in the CDM system.

1.3. The 'additionality' issue

The key tool that the CDM Executive Board and other governing panels employ to judge the eligibility of projects under the CDM is the concept of 'additionality'. The term refers to the classification of a project as being additional to business as usual, and the regulators involved have spent many hours establishing the definition of additionality and refining tools used to ascertain whether a project should be deemed to go beyond business as usual and how many carbon credits, or CERs, the project should be awarded.

The 2001 Marrakesh Accords, in which the details for the implementation of the CDM were set out, provide a brief defintion of additionality. Paragraph 43 of the procedural annex define a project as additional "if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity."

The most fundamental question is thus whether emissions without the project would have been higher than with the project. In other words, developers need to establish whether baseline emissions are higher than emissions under the project.

Unfortunately, producing a perfect baseline is difficult in practice. However, it is now clear that it is not enough that a project reduces emissions. The carbon credit aspect of the project also needs to be a crucial factor for the project to happen. While this aspect of additionality is not expanded on by the Marrakesh text itself, the accords have been interpreted and elaborated on by the CDM Executive Board (EB) in numerous decisions.

The EB has summarised its view on additionality in a separate additionality tool, most recently updated in February 2007. This third version of the additionality tool prompts developers to suggest alternative scenarios without CDM funding and then compare these to the scenario with

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the CDM project. Once the alternatives have been stipulated, the tool requires that developers perform either an investment analysis or barrier analysis to establish additionality.

Under the investment analysis, the developer needs to show whether the proposed project activity is economically less attractive than at least one realistic and credible alternative. The investment test is passed if the proposed project is unlikely to constitute the most attractive scenario.

The barrier analysis requires that the proposed project activity faces obstacles that prevent the given type of project activity while not preventing an alternative. Barriers may exist because a project is the first of its kind or because of limited access to technology and know-how in the area where the project is planned.

The basic principle is that the activity to reduce emissions is harder to do than business as usual, is still possible to get around in a few cases.

However, as well as the rules applied by the central CDM authorities, projects also require host country approval. This allows for another level of checks on project types. For example, many of the larger projects are hosted by China, where the government has demonstrated its capacity to assess the additionality of projects in its realm. Beijing has imposed a levy on CDM projects that serves to restrict the number of CERs issued to large projects.

The Chinese authorities charge a 65% levy on all the CERs awarded to projects that reduce the potent greenhouse gas HFC-23, which is a by-product of the manufacture of the refrigerant gas HCFC-22. Projects that reduce N_20 are subject to a levy of 30% of the CERs awarded, while other projects, typically in the renewable energy field, are levied just 2% of the CERs awarded.

The government has suggested that the proceeds be invested in reducing the country's greenhouse gas emissions. The higher levy rate applied to the large chemical projects is seen as restricting the high internal rate of return on the larger projects.

The application of the concept of additionality is continuously under review and subject to change. Opinions differ on how it should be applied. At one extreme, it has been suggested that if a project is financially viable, then it is not additional. At the other extreme, others content that if it is possible to establish a baseline emissions for the project type then it should be passed automatically.

As it has evolved over the years, the application of additionality to CDM projects has tended towards increasing stringency. New project types can be expected to face the robust application of the rules as defined by the CDM Executive Board.

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1.4. Performance of the validators

The role of the validators and verifiers in the CDM project market is critical to the scheme. They must be accredited by the CDM Executive Board as designated operational entities (DOEs). Their role is two-fold:

- to validate and subsequently request registration of a proposed CDM project;
- to verify emission reductions of a registered CDM project activity, certify as appropriate and request the Board to issue CERs accordingly.

Concerns that not all DOEs were performing to the expected standard were raised by the CDM Executive Board. A spot inspection of three DOEs in 2007 prompted the Board to note that practices were not meeting the expected standard. The Board declined to publicise the names of the DOEs, but it set out several measures to ensure that the expected standards were met.

One of the issues that DOEs face is the lack of competency in personnel, notably in the field. As their services are highly valuable to project developers, there is a leakage of staff from DOEs to the private sector. Also, it has been noted that in some cases the practices or competencies of local agents fall short.

A second cause for lower performance by DOEs is the highly competitive nature of the market. With relatively few DOEs accredited early in the process, the relatively newly accredited companies must compete for a smaller market share. The grounds for competition tend to be on price rather than quality.

1.4.1. KEY CHANGES

One result was that the Accreditation Panel, which makes recommendations as to a company's eligibility for DOE status, increased its control of the DOEs beyond their initial accreditation. It has set out a work plan to ensure standards are met. It has the mandate to conduct regular reviews of the quality of the work of DOEs. In its last two reports, it has focussed on DOEs and following up on their performance, their internal structures and any conflicts of interest.

Another result was that a team of inspectors was created. The Registration and Issuance Team was established by the Executive Board and is able to conduct spot checks on the accredited office of the DOE. The checks may last up to two days and occur once every three years, without notice.

Three years after being accredited, the DOE must re-apply for its accreditation and pass through the same approval process set by the CDM Executive Board. If it finds serious issues with the performance of the DOE, the Executive Board can withdraw its accreditation.

In conclusion, the CDM process is complex and has checks built into the system. The system itself is constantly under review with the intention of continually improving its functionality, both

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in terms of efficiency and quality of results. There is little evidence that problems with the validation and verification structure in the CDM reach beyond a limited number of companies or individuals, although measures have been put in place to filter out those that do not meet the standard of work the CDM Executive Board expects.

1.5. Incentives for participants to own 'high-quality' credits

Given the limited, but still significant scope for projects with low environmental performance to benefit from the global carbon markets, what are the incentives on participants in the market to acquire credits from 'high quality' projects? There are two fundamental incentives for participants in the carbon market to own CERs, or other recognised credits, from 'quality' projects, outlined below.

1.5.1. ETHICAL QUALITY

Firstly, the ethical characteristics of a project determine its attraction to certain buyers. Ethical quality can be defined as corporate social responsibility, environmental integrity or the project type. The buyers likely to apply ethical criteria may be companies with exposure to criticism by their final customer or public, such as airlines, or that seek to improve their public image by offsetting their emissions through the acquisition of CERs.

The attraction of being able to associate the entity with a project with impeccable environmental and social qualifications is considerable. Standards have been developed that create a 'best practice' stamp of approval for those CDM projects that meet ambitious social and environmental criteria. Projects that meet those standards my find they can command a higher price than the prevailing market.

Contrarily, after a series of articles published in the Financial Times criticising certain project types, CERs issued to HFC-23 decomposition projects were discounted to all other CER types. The discount, albeit short-lived, was a result of pricing in the public disapproval of such project types.

The application of a set of criteria within the CDM rules is not limited to the voluntary sector. The European Union decided to allow companies in the EU emissions trading scheme to use CERs for compliance.

However, CERs from land use and forestry projects are excluded, as are those from large-scale hydropower dams that do not meet the criteria set out by the World Commission on Dams, or equivalent international standard. This rule effectively filters out CERs from the most controversial project types.

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1.5.2. RISK AND QUALITY

The second incentive relates to risk management. The risk inherent in a project reflects to a certain extent the ability of the project developer and DOE to gain approval of a project.

In the primary CDM market, where buyers undertake to pay for the delivery of CERs directly from the project, the price established in the contract reflects a series of risks to the final delivery of the CERs. A major area of risk is the performance of the project, from its implementation on the ground through to its registration by the CDM Executive Board as an eligible project. It must then conduct the emission reductions and, once the reduction is quantified and verified, it seeks issuance of CERs.

In this context, project types or actors that typically under-perform or have a disappointing success rate, or that are hosted in countries that are considered to have lax controls, often find that demand for their product is less than otherwise and achieving the highest price levels is more difficult.

The projects with least risk of partial or total failure to deliver command the highest prices, currently in the region of €15 to €17 per tonne. To the buyer, they represent high 'quality' in terms of risk management. Each CER has a unique identification number and can be linked to its originating project.

In the secondary market, this natural check does not currently apply. Once the CER has been issued and sold on once, it can be resold without being linked to the original project. This is notably the case with European participants. When the seller gives the order to deliver CERs to the buyer, the registry automatically starts by offering the oldest credit first. Where the seller has CERs from different projects, it cannot specify which ones should be transferred to the buyer next, so in the secondary market it is currently not possible to ensure the buyer receives credits from a particularly high quality project.

For example, credits generated by projects that reduce emissions of the potent greenhouse gas HFC-23 may be resold by or to a European participant without being specified as such. Such projects can be unpopular among buyers as they are cheap to generate and have limited developmental benefit.

This issue has been raised with the registry operators in individual countries, with the European Commission and with the UN secretariat of the Framework Convention on Climate Change. It is reasonable to expect that this limitation on the functionality of registries may be lifted after amending the software.

1.6. Other credit types

The CDM mechanism is the most developed of the Kyoto Flexibility mechanisms and has by far the largest traded volumes. Joint Implementation (JI) is currently much smaller than the CDM

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but is beginning to develop as countries develop their internal approval processes and there is certainly a large potential through this scheme, especially in Russia and Ukraine.

The crediting period for JI begins in 2008 and it is reasonable to say that by being a second mover (compared to CDM), JI has learnt some lessons from the CDM. These mostly relate to the administrative setup of the JI Supervisory Committee (JISC), which is the equivalent of the CDM Executive Board.

In JI, the host countries play a more significant role in the process of approving projects as credits from JI projects. Emission reduction units (ERU) from JI projects are coupled with an equivalent volume of AAU's so any issuance of ERU credits to JI projects that do not achieve their reduction objectives is effectively transferring value from a country to the investing company. This ensures that countries themselves take an active role in checking the environmental integrity of JI projects, and this in turn has meant that it is harder to obtain host country approval for JI projects, than for CDM projects.

In terms of AAUs, the main concern is that there is a huge surplus of credits from countries such as Russia and Ukraine, although this is due to a drop in emissions following economic downturn rather than any environmental actions/policy. Within the EU, one control is to prevent private companies from being able to use this credits for compliance. For the governments themselves, most have stated that they will not use purchased AAUs to comply with their Kyoto obligations, and those that will use these credits will go through the Green Investment Scheme (GIS). This describes an AAU transaction where the seller commits to channel the proceeds of the sale of AAU credits either into projects that reduce specifically greenhouse gas emissions, as tends to be the case with European sovereign buyers, or into capacity-building projects or those with more general environmental benefits, as has been explored by Japanese buyers.

1.7. Summary

The regulators of the most important project offset system, the Clean Development Mechanism, are aware that the system's purpose is undermined if the veracity of the emissions reductions is not guaranteed.

The concepts introduced to judge CDM projects are problematic and lend themselves to different interpretations. This is particularly true of the additionality criterion. It was ill-defined from the outset, but the CDM Executive Board has striven to establish a firm definition and method for applying the criterion to ensure that genuine reductions in greenhouse gas emissions are occurring.

The rules established by the Board are constantly under review and the trend is for greater stringency to be applied to the CDM approval process. The rejection of projects for registration and the award of fewer CERs than anticipated by the project developer suggests that quality control is being applied.

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A further layer of control is exercised by the host country in its approval process. Some countries have demonstrated their capacity to judge projects on their environmental and other merits.

The role of the project validators and verifiers is critical to the integrity of the scheme. Some practices by accredited firms have been found to be lacking, including by the Executive Board itself. The Board has implemented measures to check on the performance of accredited validators and verifiers, including surprise spot checks. All such companies must also re-apply for accreditation every three years. Those firms found to be lacking in their internal structures, practices or those that are found to have conflicts of interest can lose their accreditation.

There is evidence that buyers also exercise control over the quality of the credits they own. Projects with high risk profiles in relation to their ability to gain CDM approval may struggle to find buyers.

Buyers are also incentivised to acquire credits from projects with high ethico-environmental standards. Firstly, they may be exposed to public disapproval or be bound by their internal corporate social responsibility standards. A member of the general public seeking to offset their associated emissions can also select credits from CDM projects that meet best practice benchmarks.

Another layer of filtering can be set by investor governments. This is most notably so in the case of the EU, where companies in the regional emissions trading scheme can use CERs for compliance with their emissions caps, but only those credits from certain project types. Land use and forestry projects, for example, are excluded.

It is impossible to be definitive about the environmental veracity of the processes such as the Clean Development Mechanism. The nature of the mechanism, especially the need for an additionality criterion, is such that environmental integrity cannot always be guaranteed. However, the tendency is for increasingly stringent rules and probity checks. Processes have improved and it is expected they will continue to do so.

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