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Making Sense of the Voluntary Carbon Market

A Comparison of Carbon Offset Standards

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Executive Summary

In order to preserve a high probability of keeping global temperature increase below 2 degrees Centigrade, current climate science suggests that atmospheric CO₂ concentrations need to peak below 450ppm. This requires global emissions to peak in the next decade and decline to roughly 80% below 1990 levels by the year 2050 (Baer and Mastrandrea, 2006). Such dramatic emissions reductions require a sharp move away from fossil fuel, significant improvements in energy efficiency and substantial reorganisation of our current economic system. This transition can only be achieved by far-reaching national and international climate policies.

Carbon offsetting is an increasingly popular means of taking action. By paying someone else to reduce GHG emissions elsewhere, the purchaser of a carbon offset aims to compensate for – or “offset” – their own emissions. Individuals seek to offset their travel emissions and companies claim “climate neutrality” by buying large quantities of carbon offsets to “neutralize” their carbon footprint or that of their products.

Carbon offset markets exist both under **compliance schemes** and as **voluntary programs**. Compliance markets are created and regulated by mandatory regional, national, and international carbon reduction regimes, such as the Kyoto Protocol and the European Union’s Emissions Trading Scheme. Voluntary offset markets function outside of the compliance markets and enable companies and individuals to purchase carbon offsets on a voluntary basis (see chapter 2.2). With more than € 20 billion* traded in 2006 (Capoor & Ambrosi, 2007), carbon markets are already a substantial economic force and will likely grow considerably over the coming years. The voluntary market, although much smaller than the compliance market, (€62.6 million in 2006; Hamilton, 2007) is also growing rapidly.

This report discusses the role of the voluntary carbon offset market and provides an overview and guide to the most important currently available voluntary carbon offset standards using the Clean Development Mechanism (CDM) as a benchmark†. The report compares the standards side-by-side and outlines the most pertinent aspects of each. The evaluated standards are:

- Clean Development Mechanism (CDM)
- Gold Standard (GS)
- Voluntary Carbon Standard 2007 (VCS 2007)
- VER+
- The Voluntary Offset Standard (VOS)
- Chicago Climate Exchange (CCX)
- The Climate, Community & Biodiversity Standards (CCBS)
- Plan Vivo System
- ISO 14064-2
- GHG Protocol for Project Accounting

Carbon offset markets have been promoted as an important part of the solution to the climate crisis because of their economic and environmental efficiency and their potential to deliver sustainability co-benefits through technology transfer and capacity building. The voluntary offset market in particular has been promoted for the following reasons:

Possibility of Broad Participation

The voluntary carbon market enables those in unregulated sectors or countries that have not ratified Kyoto, such as the US, to offset their emissions.

* All monetary figures were converted to euros, using the exchange rate from Feb, 5, 2008 of 1 USD = 0.67 euros. Standard fees listed in USD were left unchanged.

† The terms *GHG offset standard* and *carbon offset standard* are used as synonyms.

Preparation for Future Participation

The voluntary carbon market enables companies to gain experience with carbon inventories, emissions reductions and carbon markets. This may facilitate future participation in a regulated cap-and-trade system.

Innovation and Experimentation

Because the voluntary market is not subject to the same level of oversight, management, and regulation as the compliance market, project developers are more flexible to implement projects that might otherwise not be viable (e.g. projects that are too small or too disaggregated).

Corporate Goodwill

Corporations can benefit from the positive public relations associated with the voluntary reduction of emissions.

Most importantly, voluntary and compliance offset mechanisms have the potential to strengthen climate policies and address equity concerns:

Cost-effectiveness that allows for deeper caps or voluntary commitments.

By decreasing the costs of reductions, offsets can in principle make a compulsory mandate more politically feasible and a voluntary target more attractive, thereby accelerating the pace at which nations, companies, and individuals commit to reductions.

Higher overall reductions without compromising equity concerns.

One of the greatest challenges of climate protection is how to achieve the deep global emissions reductions required while also addressing the development needs of the poor. Historically, developed nations have been responsible for a much larger share of the increase in atmospheric GHG concentrations than developing countries. But to achieve climate stabilisation, emissions must be curbed in all countries, both rich and poor. Offsets may be one way out of the conundrum of needing to achieve steep global emissions reductions while at the same time allowing poor nations to develop. This has not been the case thus far because the emissions reductions undertaken have been too small to be significant. Small reduction targets allow participants to tinker at the margins and avoid the kind of restructuring that is needed to achieve climate stabilizations. While taking on considerable domestic emissions reductions, industrialized countries could, through offsets, help finance the transition to low-carbon economies in developing nations. In other words, offsets might allow equity to be decoupled from efficiency, and thus enable a burden-sharing arrangement that involves wealthier countries facilitating mitigation efforts in poorer countries*.

Yet carbon offsetting is not without its critics. A recent flurry of media reports has criticised the poor quality of carbon offsets projects in both the compliance and the voluntary market (e.g. Financial Times, 2007). Recent research reports have pointed out that a significant number of offsets come from projects that would have been implemented anyway (i. e. are non-additional, see section 5.1) (Schneider, 2007; Haya, 2007) Critics have also raised concerns over equality and fairness based on the argument that carbon offsetting enables developed nations to perpetuate unsustainable lifestyles by funding carbon projects in developing countries. Some argue that these projects rarely lead to benefits for the host community, and have gone so far as to call the offset market a form of carbon colonialism (Eraker, 2000). Others assert that accounting methods for offsets are too inaccurate to justify claims of real emission reductions or to support the achievement of 'carbon neutrality'. The voluntary offset market in particular has been criticised for its lack of transparency, quality assurance and third-party standards.

To address these shortcomings, over a dozen voluntary offset standards have been developed in the last few years. Each standard has a slightly different focus and none has so far managed to establish itself as *the* industry standard. Some closely mirror compliance market standards, while others take

* For an in-depth analysis of such a potential climate and equity framework, see the *Greenhouse Development Rights Framework* (Baer et al 2007)

a more lenient approach in order to lessen the administrative burden and enable as many credits as possible to enter the market. Certain standards are limited to particular project types (e.g. forestry) while others exclude some project types in order to focus on the social benefits of carbon projects. It is important to note that the vast majority of voluntary offsets are currently not certified by any third-party standard. This is likely to change over the coming years.

General Standard Information

The summary table provides broad comparisons and summaries of the standards. Each of the criteria is briefly put in context and explained below.

Main Supporters

'Main Supporters' lists the type of stakeholder associated with each standard. Each of the reviewed standards has been developed and is supported by different groups of stakeholders. The types of stakeholders reflect to some extent the goal of the standard.

Market Share

Not all standards are equally influential. 'Market Share' indicates the size of each of the standards, and thus to some extent reflects the standard's importance.

Price of Offsets

'Price of Offsets' indicates the cost of one offset representing the reduction of 1 tonne of CO₂e. Offset prices depend on many different parameters, such as the type of project, the location, market demand, stringency of the standard requirements, etc. The pricing given in this column indicates average prices for different projects as of early 2008 (see chapter 7.)

Authors' Comments

The Authors' comments state the perceived goal of each standard and any relevant information about the standard. More in-depth commentary and information about each standard can be found in chapter 7.

Additionality

Additionality tests attempt to establish whether an offset project would have happened anyway. A major limitation of offset systems based on project-based mitigation is that emission reductions have to be measured against a counterfactual reality. The emissions that would have occurred if the market for offsets did not exist need to be estimated in order to calculate the quantity of emissions reductions that the project achieved. This hypothetical reality cannot be proven; instead, it must be inferred and its definition is always to some extent subjective (see chapter 5.1).

Additionality Tests (relative to CDM)

The CDM additionality tool (see appendix B) most commonly used for testing the additionality of CDM projects was developed carefully over several years. In this column it is used as a reference against which the other standards' project-based additionality testing procedures are compared:

- + Requirements go beyond and are more stringent than CDM rules
- Requirements are less stringent than CDM
- = Requirements are the same or very similar to CDM
- N/A Not Applicable

Although the CDM additionality tool is well respected, it does not guarantee that only additional projects are approved. Recent reports have shown that despite the fact that the additionality tool is required for all CDM projects, it is likely that a significant number of non-additional projects are registered (Schneider, 2007; Haya, 2007). Similar studies have not yet been carried out for VER projects. It is therefore impossible to know if VER standards likely have a higher or lower percentage of additional projects. It remains to be seen how well these standards will succeed in implementing their additionality requirements.

Some of the standards, such as the VCS and the VER+, plan to develop performance-based additionality tools (also called benchmark tools). By shifting the tasks of establishing a baseline from the project developer to the standard-setting organisation, benchmark tools could potentially increase transparency and decrease administrative burden for project developers. Yet such approaches also harbour the danger of certifying too many free riders. Benchmark rules will have to be closely examined to ensure that they minimize or mitigate the effects of non-additional offsets (see chapter 5.1).

Approval Process

Although offset markets are relatively straightforward in principle, they have been anything but straightforward to implement in practice. In part, this may be attributed to the inevitable birthing pains associated with creating institutions and stabilizing new markets. But problems also arise from inherent structural problems inherent in the conception of offset markets. Offset markets lack a critical competitive check found in well functioning markets, in which the interests of buyer and seller are naturally balanced against each other. In offset markets, both the seller *and* the buyer benefit from maximizing the number of offsets a project generates. This issue can partially be mitigated by imposing stringent requirements for auditors and an additional approval process through the standard organisation (see chapter 5.6).

Another conflict of interest arises from the fact that auditors are currently chosen and paid by a project's developer. There is thus pressure on auditors to approve projects in order to preserve their business relationships with the developers. This compromises the auditors' independence and neutrality. To account for this dynamic, offset markets need an administrative infrastructure to ensure that auditors' estimates of project reductions are reasonable.

Third-party Verification Required

To minimize the number of "free riders," most standards require third-part auditors to verify the emissions reductions.

Separation of Verification and Approval Process

Fundamental differences exist among standards as to how projects are reviewed and approved. Under the CDM, projects are verified by third-party auditors and then reviewed, approved or rejected by the CDM Executive Board. Most voluntary offset standards do not have such a body to review and approve the projects after the auditors have verified them. Projects are simply approved by the auditors themselves. The lack of a standard body which approves projects exacerbates conflicts of interest, particularly where auditors are selected and paid for by the project developer. None of the voluntary standards have specific procedures in place to review the approved auditors nor to allow for sanctions against or the discrediting of an under-performing auditor (see chapter 5.6).

Registry

Carbon offset registries keep track of offsets and are vital in minimizing the risk of double-counting, that is, having multiple stakeholders take credit for the same offset. Registries also clarify ownership of offsets (see chapter 5.7).

Offset Project Information

Each standard accepts different types of offset projects. The CDM, for example accepts all projects that reduce the six GHGs listed in the Kyoto Protocol, with the exception of the protection of existing forests (REDD), nuclear energy, and HFC destruction from new facilities (see chapter 5.2).

Project Types

REDD = Reduced Emissions from Degradation and Deforestation

EE = Energy Efficiency

RE = Renewable Energy

LULUCF = Land Use, Land-Use Change and Forestry = Bio-Sequestration

Excludes Project Types with High Chance of Adverse Impacts

Some project types are more likely to have adverse social and environmental impacts. Some standards therefore exclude these projects types, such as tree plantations and monocultures which are detrimental to biodiversity and can negatively impact watersheds or large hydro projects, which can displace large numbers of people.

Sustainable Development

Co-benefits are social and environmental benefits that go beyond the GHG reduction benefits of offset projects. Such benefits include job creation, improved local air quality, protected and enhanced biodiversity, etc. The Clean Development Mechanism (CDM) was approved by developing nations specifically because offset projects were not only to provide cost-effective reductions for Annex 1 countries but also development benefits for the host countries. In other words, to qualify as a CDM project, the original intention was that a CDM project would have to deliver development benefits. In practice, the CDM has failed to consistently deliver such development and sustainability benefits (Holm Olsen, 2007; Sutter and Parreño, 2007; see chapter 5.5.)

Co-Benefits (relative to CDM)

Voluntary standards vary in their requirements for co-benefits. This column highlights the co-benefit requirements of each standard, comparing them to the requirements of the CDM.

Many of the voluntary carbon offset standards that have been developed in the last few years represent a step in the right direction. They help address some of the weaknesses in the current offsetting process and foster climate mitigation projects. The voluntary market in particular has helped to shape climate actions in countries that have thus far been reluctant to enact strong policies. Even with far reaching cap-and-trade policies expected to be enacted in the medium term, there will likely always be room for a voluntary market. The demand for voluntary offsets will come from private and corporate actors who wish to go beyond regulatory requirements and will be supplied by mitigation projects in sectors that are not capped. Well-designed standards will help the voluntary market mature and grow.

Main Supporters	Market Share	Additionality Tests (relative to CDM)	Third-party Verification Required	Separation of Verification and Approval Process	Registry	Project Types	Excludes Project Types with high chance of adverse impacts	Co-Benefits (relative to CDM)	Price of Offsets
Clean Development Mechanism									
UNFCCC Parties	large	=	yes	yes	yes	All minus REDD, new HFC, nuclear	no	=	€14–30
Authors' Comments:	The CDM is part of the Kyoto protocol and aims to create economic efficiency while also delivering development co-benefits for poorer nations. It has been successful in generating large numbers of offsets. Whether it also has delivered the promised development co-benefits is questionable.								
Gold Standard									
Environmental NGOs (e.g. WWF)	small but growing	=/+ ¹	yes	yes	Planned	EE, RE only	yes	+	VERs: €10–20 CERs: up to €10 premium
Authors' Comments:	The GS aims to enhance the quality of carbon offsets and increase their co-benefits by improving and expanding on the CDM processes. ¹ For large scale projects the GS requirements are the same as for CDM. Yet unlike CDM, the GS also requires the CDM additionality tool also for small-scale projects.								
Voluntary Carbon Standard 2007 (VCS 2007)									
Carbon Market Actors (e.g. IETA)	new; likely to be large	= ²	yes	no	Planned	All minus new HFC	no	-	€5–15 ³
Authors' Comments:	The VCS aims to be a universal, base-quality standard with reduced administrative burden and costs. ² The VCS plans to develop performance based additionality tests. These tools have not yet been developed and are thus not included in this rating. ³ Prices are for projects implemented under VCS ver. 1.								
VER+									
Carbon Market Actors (e.g. TÜV SÜD)	small but growing	=	yes	no	yes	CDM minus large hydro	yes	-	€5–15
Authors' Comments:	VER+ offers a similar approach to CDM for project developers already familiar with CDM procedures for projects types that fall outside of the scope of CDM.								
Chicago Climate Exchange (CCX)									
CCX Members and Carbon Market Actors	large in the US	-	yes	yes	yes	All	no	-	€1.2–3.1 ⁴
Authors' Comments:	CCX was a pioneer in establishing a US carbon market. Its offset standard is part of its cap-and-trade programme. ⁴ Sales in USD: \$1.8-4.5 per metric tonne (October 07-February 08)								
Voluntary Offset Standard (VOS)									
Financial Industry and Carbon Market Actors	N/A	=	yes	no	Planned	CDM minus large hydro	yes	=	N/A
Authors' Comments:	VOS closely follows CDM requirements and aims to decrease risks for offset buyers in the voluntary market.								
Climate, Community and Biodiversity Standards (CCBS)									
Environmental NGOs (e.g. Nature Conservancy) and large corporations	large for LULUCF	=	yes ⁵	no	N/A	LULUCF	yes	+	€5–10
Authors' Comments:	The CCBS aims to support sustainable development and conserve biodiversity. ⁵ The CCBS is a Project Design Standard only and does not verify quantified emissions reductions.								
Plan Vivo									
Environmental and social NGOs	very small	=	no	no	yes ⁶	LULUCF	yes	+	€2.5–9.5
Authors' Comments:	Plan Vivo aims to provide sustainable rural livelihoods through carbon finance. ⁶ It verifies and sells ex-ante credits only. Third party verification is not required but recommended.								