

White Paper on Greenhouse Gas Offsets September 2008

Greenhouse gas ‘offsets’ (GHG offsets) are an important policy tool in addressing climate change. Ideally offsets would be defined at the federal level. They offer compliance flexibility for the regulated entity at a reasonable price, while often providing co-benefits to society. This paper examines the basic principles of offsets.

What is an ‘offset’ and how does it differ from an ‘allowance?’

A ‘GHG offset’ is created from the *reduction, avoidance, or sequestration (capture)* of GHG emissions from a *specific project*. Offsets are so named because they counteract or offset greenhouse gases that would have been emitted into the atmosphere. On the other hand, ‘GHG allowances’ are issued by a governmental entity (either through allocation or auction) and represent a right to emit one unit of something, in this case, carbon dioxide or CO₂. Although their creation and procurement processes differ, both GHG offsets and GHG allowances are tradable commodities which can be ultimately used for compliance purposes; assuming the offset project meets applicable criteria discussed below.

What is the purpose of GHG Offsets?

Offsets provide an opportunity to obtain GHG reductions from sources not specifically controlled by a cap-and-trade or other regulated program. By expanding the available sources of emission reductions, a greater variety of technology and process innovations can be explored to reduce GHG emissions. Compliance can then be achieved by utilizing the lowest cost options, thus reducing the overall cost of a GHG program to regulated entities and their customers.

GHG Offset Criteria

To be certain that an offset project results in a true benefit to the environment, reductions, avoided emissions or sequestered emissions should be *real, additional, verifiable, permanent, and enforceable* and should occur on or after a pre-defined date. Definitions for these terms vary, but generally have the following meaning:

- **Real** means actual.
- **Additional** means GHG emission reductions, avoided emissions, or sequestered emissions that are not required by local, state or federal law or regulation, or as part of a local, state or federal permit, plan, or plan approval, agreement, administrative or judicial order, or as part of an enforcement action (including such laws, regulations, permits, plans, plan approvals, agreements, orders or actions taken to reduce other pollutants) at the time of submittal of a certification application. A requirement to obtain a permit or plan approval under local, state, or federal law solely for the purpose of constructing, installing, or operating a voluntary emission reduction, avoided emission, or sequestered emission project shall not be considered when determining whether or not such project is additional.

Some programs also include a criterion that that ‘additional’ has to be above and beyond “business as usual.” However, the definition of “business as usual” can discourage projects that have value in addition to their offset value.

- **Verifiable** means that emission reductions, avoided emissions or sequestered emissions can be determined through replicable quantification methods which are acceptable to the regulatory entity
- **Permanent** means that GHG emission reductions, avoided emissions, or sequestered emissions implemented for the purpose of generating GHG Credits must be assured for the life of the corresponding GHG offsets.

- **Enforceable** means enforceable by a regulatory agency.

Some examples of offset projects:

1. the capture or reduction of fugitive greenhouse gas emissions, such as those from the natural gas pipeline industry;
2. methane capture or combustion at nonagricultural facilities, including landfills, waste-to-energy facilities, and coal mines;
3. reduction, destruction, or avoidance of sulfur hexafluoride (SF₆) emissions from sources of the emissions, including electrical transformation and distribution equipment and gas substitution in magnesium manufacturing;
4. the capture and geological sequestration of greenhouse gas emissions;
5. beneficial use of coal combustion products (CCPs) that avoids energy consumption and GHG emissions associated with production and use of other virgin materials; and
6. facility or unit shutdowns, as of a predefined date.

Additional Co-Benefits to Offsets

In addition to reducing GHG emissions, GHG offset projects can produce other environmental, social, and economic co-benefits such as:

- reductions in other atmospheric pollutants
- restoring degraded lands
- improving watersheds and water quality
- protecting endangered species
- creating jobs
- saving money on electricity and gasoline

Offset Categories

Regulators can define a specific list of offset category types that are acceptable. This is the present path of U.S. proposed legislation. However it is better for the regulatory framework to allow all project types with approval handled on a case by case basis.

Geographic boundaries

Unlike EPA's SO₂ Acid Rain Program, and NO_x Budget Trading Program (designed to reduce NO_x emissions during the summer months i.e. ozone season) the geographic location of a GHG reduction is not relevant.

Project Baseline

The term '*baseline*' means the level of greenhouse gas emissions or a carbon stock scenario that would occur with respect to a GHG offset project or activity in the absence of that offset project. It is imperative that once a project baseline is established in the initial process, it does not change over time. Otherwise, if a baseline becomes a moving target which can be modified during the allocation period, it becomes an investment risk that project developers may be unwilling to bear. There are already significant project risks associated with GHG emissions reduction projects for investors, sellers and purchasers of the emission reduction offsets, in addition to market risks. Parties need a basis for projecting quantity and other factors to determine financial risks relative to the project. Investors and ultimately, purchasers of the offset stream from a project evaluate the projected quantity of anticipated reductions which would be available to contract for under a longer term purchase agreement, albeit subject to certain foreseeable project contingencies.

Procurement of Offsets

A robust mandatory GHG offsets market does not currently exist in the United States. The mandatory GHG allowance market under RGGI is now emerging, with its first auction set for September 25, 2008, the U.S. market for allowances is just starting to develop. However, with rules for mandatory offsets remaining somewhat unclear, the US GHG offsets market has not yet developed to be fully “commoditized.” Procurement of GHG offsets can be done by one of three general mechanisms as illustrated below:

- **Broker** – Currently, transactions between parties involving NO_x and SO₂ allowances are typically handled by “brokers.” Brokers generally deal with environmental commodities which are very well defined and do not take “title” to the commodity. They also do not assume delivery risk of the commodity.
- **Aggregator** – Aggregators typically take title to the commodity, take on delivery risk and in some cases, have a financial stake in the GHG offset projects they are aggregating. To date, there are very few aggregators with domestic (United States) experience in the regulatory market. Aggregators manage an “inventory” of GHG projects by contracting directly with project owners or developers so that the rights associated with the GHG offsets are transferred to the aggregator. Aggregators also typically have responsibility for third party certification and verification report documentation. In other words, they contract with independent third parties who perform project certifications (the third party confirms that the project meets certain regulatory and/or contractual criteria) and verification (quantification of the GHG reductions, avoidance or sequestration).
- **Direct Contracting** – Another mechanism is for a company to obtain GHG offsets is to directly issue a Request for Proposal (RFP) or to have a third party, such as the Climate Trust, issue an RFP. GHG offset project developers respond to the RFPs and a winner is chosen. Solicitations of this type usually involve multiple rounds in order to benefit from the highest quality projects possible, at the lowest price. These types of solicitations could originate from one company, or as an alternative,; a coalition of companies could choose to aggregate their financial resources and to prorate the GHG offset benefits. The solicitation process through contract execution could take anywhere from 6 (expedited) to 18 (typical) months.

Difficulties with GHG Offset Market Dynamics

The ideal offset program would be national, with national standards. Due to the lack of regulatory certainty in the U.S., GHG offset transactions carry a high level of risk, and some companies and project developers are reluctant to enter into this market. It has been observed that project developers are holding back and/or hoarding potential offset projects in anticipation of higher demand for offsets and potentially higher prices in the future. Further complicating the matter is the current stage of regulatory development which makes it difficult to assess the transaction costs associated with obtaining regulatory approval (certification and verification).

The regulatory offset demand signal may be too small to attract significant interest from project developers. Development of an offset project can require a significant amount of project development funds. At this time, sellers appear unwilling to invest this “sweat equity” due to uncertainty in demand.

Furthermore, many GHG offset projects desire some form of up front financing. By definition, offset projects are project activities that do not have access to the typical financial markets. While this desire undoubtedly strengthens the additionality case of a given project, most purchasers of GHG offsets do not want to provide up front financing and do not want to hold equity positions in projects that are not part of their core business. Instead, companies purchasing GHG offsets are interested in purchasing offsets ‘upon delivery,’ similar to other commodities such as REC’s, NO_x allowances, and SO₂ allowances.

Offset project developers have further difficulty financing their projects, as regulatory offsets are a new commodity and banks will not provide loans against offset contract revenues. Often commercial banks considered that size of the potential loans for financing GHG offset projects too small to be worthwhile. In order for the U.S. offset market to mature, there is an important and critical role for third parties that have

the financial resources and the expertise to originate high quality offsets and to assume some of the associated project risks.

There may be a role for companies or institutions to bridge this gap in the U.S. regulatory context. These could be parties willing to take an equity position in large scale project development, obtaining independent third party verification to ensure high quality, placing pre-qualified offsets into a registry and then looking for off takers to buy streams of high quality offsets.

Another proposal is to develop a ‘Standardized Emission Reduction Purchase Agreement’ or ERPA. This is a critical element to executing the purchase of GHG emissions reductions from projects between the buyer and seller. While standardized commodity agreements are readily available and widely utilized in the US markets for REC’s, NO_x, and SO₂ allowances, a similar standardized contract does not exist for GHG offsets. While several organizations are currently working on one for the voluntary carbon offset markets, one does not currently exist for regulatory markets. This is often one of the most time consuming elements of the process and could benefit from a standardized approach.