ENSURING OFFSET QUALITY

Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy

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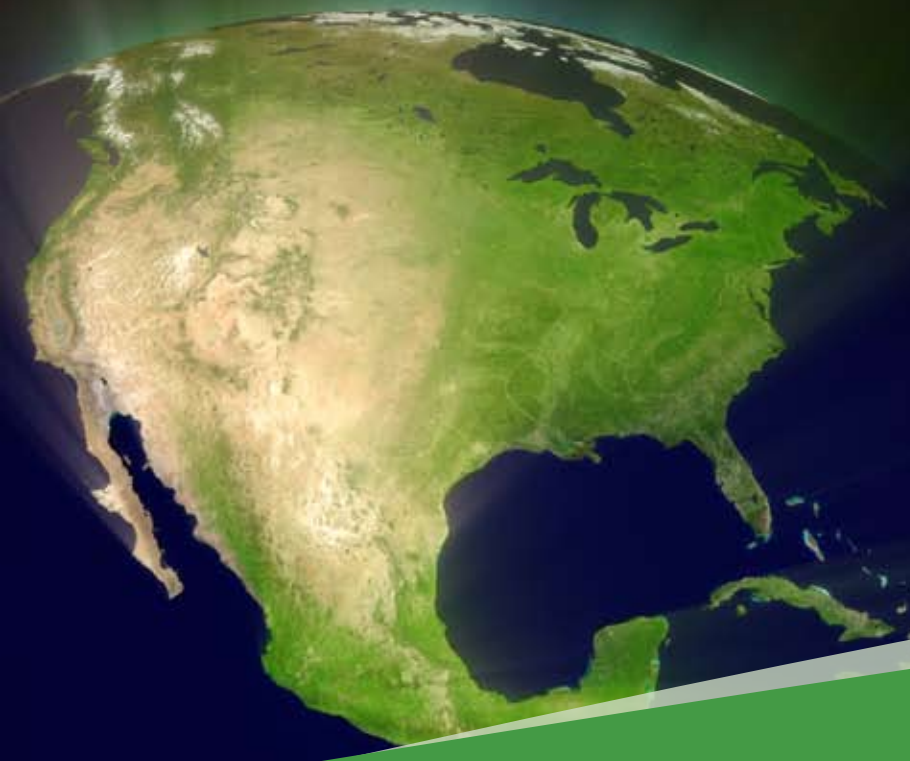

OFFSET QUALITY INITIATIVE

PURPOSE AND OVERVIEW

This document is intended to provide policymakers with practical recommendations regarding the integration of greenhouse gas (GHG) offsets ("offsets") into emerging regulatory systems. Offsets have an important role to play in controlling the costs associated with regulating and reducing GHGs, and in driving technology transformation in sectors not mandated to reduce their GHG emissions. In order for offsets to deliver on their intended purpose—the achievement of a real and verifiable reduction in global GHG emission levels beyond what would have otherwise occurred—regulatory programs must be designed to ensure the quality and effectiveness of offsets used to meet GHG reduction requirements. Moreover, policymakers must have a clear understanding of both the opportunities and challenges presented by the integration of offsets into GHG emission-reduction systems.

This document represents the consensus of the member organizations of the Offset Quality Initiative: The Climate Trust, Pew Center on Global Climate Change, California Climate Action Registry, Environmental Resources Trust, Greenhouse Gas Management Institute and The Climate Group. The GHG mitigation field is evolving at a rapid pace and will continue to do so over the next several years; this document will be updated over time to reflect any changes in the Offset Quality Initiative's consensus positions.

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I. INTRODUCTION AND BACKGROUND

As the United States embarks on the path toward addressing climate change, multiple strategies will be needed to achieve the significant cuts in GHG emissions ("emissions") necessary to stabilize the climate. Among the most important, complex and controversial of these strategies is the use of GHG offsets ("offsets"). An offset represents the reduction, removal or avoidance of GHG emissions from a specific project that is used to compensate for GHG emissions occurring elsewhere.

While there is currently a growing voluntary market for offsets in the United States, offsets can also be effectively incorporated into mandatory policies such as cap-and-trade systems, which can be designed to allow firms to buy and trade credits generated by qualifying emission reduction projects ("projects") outside the boundaries of the emissions cap. These are referred to as offset credits ("offsets"), and each typically represents one metric ton of carbon dioxide equivalent.[1]

Offsets are used in lieu of an emissions reduction, removal or avoidance ("reduction") that would have otherwise been required to occur within the boundaries of the emissions cap. In other words, provided that the project meets the established eligibility criteria, the purchasing firm is allowed to use offset credits to meet its compliance obligation as though the firm had made the reduction itself. The essential promise of an offset is the achievement of a real and verifiable reduction in global GHG emission levels beyond what would have otherwise occurred that is equally effective as on-site emission reductions by regulated entities.

The Advantages of Offsets in Climate Change Policy

The Offset Quality Initiative (OQI) believes that the incorporation of offsets into climate change policy will be a critical contributor to reducing the overall cost of an emission-reduction program and facilitating the transition toward a low-GHG economy.

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1 Carbon dioxide equivalents (CO_2e) are the universal units of measurement used to indicate the global warming potential (GWP) of each of the six GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perflurocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6). It is used to evaluate the impacts of releasing (or avoiding the release of) different GHGs. CO_2e are calculated based on Global Warming Potential values established by the Intergovernmental Panel on Climate Change (IPCC).

Specifically, including offsets in a cap-and-trade system has five important advantages:

- Offsets are a market-based mechanism that enable capped entities to take advantage of lower-cost reduction opportunities in uncapped sectors, which can reduce the overall costs of achieving GHG reduction requirements.
- Offsets can realize significant emission-reduction opportunities in sectors that either are not covered by or are not appropriate for an emissions cap. They can also enable participation in GHG reduction systems by emission sources that are not readily or cost-effectively addressed by traditional command-and-control regulation.
- Offsets can stimulate emission-reduction activities in the beginning years of a GHG reduction regime, driving important changes in infrastructure, technology, and behavior in uncapped sectors.
- Offsets can provide a significant driver of new, innovative technologies that will help the transition to a low-GHG economy, reduce reliance on fossil fuels, increase energy security, and assist in meeting emission-reduction targets.
- Offsets can promote technology and knowledge transfer between the developed and developing worlds. These technologies can provide both emission reductions and other important environmental, social, and economic co-benefits.

Definition of an offset

An offset represents the reduction, removal, or avoidance of GHG emissions from a specific project that is used to compensate for GHG emissions occurring elsewhere.

**One offset credit represents one metric ton of CO_2 equivalent*

II. KEY OFFSET QUALITY CRITERIA

A key assumption regarding the inclusion and usage of offsets in a cap-and-trade program is that they represent credible emission reductions. The following are the key criteria that OQI believes all offsets must meet to ensure their integrity.

Offsets Should Be Real. Project-based offset credits should represent actual emission reductions and not simply be artifacts of incomplete or inaccurate accounting.

Offsets Should Be Additional. Because offsets are used to compensate for emission reductions that an entity operating under an emissions cap would otherwise have to make itself, the reductions resulting from offset projects must be shown to be "in addition to" reductions that would have occurred without the incentive provided by offset credits. The revenue from selling the project's emission reductions should be reasonably expected to have incentivized the project's implementation for an offset project to be considered additional.

Determining additionality is an essential but approximate process. Establishing why a project was implemented is difficult; thus, practitioners and regulators generally rely on a series of tests to determine a project's additionality. These tests can assess the regulatory, financial, technical, institutional, and/or other barriers a project or project type faces to its implementation. No single approach is the best for all projects or project types, and generally a combination of tests is necessary. OQI supports the development of cost-effective, robust, and flexible additionality assessment tools that provide a standardized, transparent, and rigorous framework for the eligibility of offset projects. These tools should account for real variation in the characteristics of different project types and other factors, such as project location, prevailing market conditions, and existing regulation.

Additionality is addressed in greater detail in the section titled "Operationalizing Offset Additionality and Quantification."

Offsets Should Be Based on a Realistic Baseline. A GHG emission baseline must be established in order to quantify an offset project's GHG reductions. A baseline represents forecasted emission levels in the absence of the offset project; this is sometimes referred to as the baseline scenario, or the "without-project" case. The difference between the baseline and the actual emissions after the offset project is implemented represents the reductions achieved by the project, and this amount is credited as an offset. Offsets are only as credible as their baselines.

There are two general approaches to baseline assessment: project-specific and standardized. With project-specific baseline assessments, each project has a unique baseline developed on a case-by-case basis. With standardized baseline assessments, a standard emission baseline is estimated for an entire project type or economic sector, which is used by all projects of that type or within that sector. Standardized assessments require an up-front analysis of regulatory, institutional, technical, and economic characteristics of a project type or sector.

Baseline establishment and quantification is addressed in greater detail in the section titled "Operationalizing Offset Additionality and Quantification."

Offsets Should Be Quantified & Monitored. Emission reductions from offset projects must be accurately quantified. Each project must have a unique monitoring plan that defines how, when, and by whom data will be collected and emissions quantified. These plans should be developed with experts familiar with the specifics of a project and should use established standards such as the World Resources Institute's Greenhouse Gas Protocol for Project Accounting and the International Standards Organization 14064-Part 2.[2]

Offsets Should Be Independently Verified. All GHG reductions should be verified by an independent, qualified, third-party verifier according to approved methodologies and regulations. Verifiers should be entities whose compensation is not in any way dependent on the outcomes of their decisions. Regulatory regimes should have an approved list of offset project verifiers and should have procedures in place to ensure that conflicts of interest are avoided. Ex post monitoring and verification reports should be used as the basis for issuing offset credits.

Offsets Should Be Unambiguously Owned. Clear and uncontested title to offset credits should be established by contractual assignment and/or government recognition of ownership rights. Furthermore, the transfer of ownership of any and all offset credits must be unambiguous and documented. Once sold, the original seller of the offset credit (and the project owner) must cede all rights to claim future credit for the same reductions in order to avoid double counting. Finally, offsets must be serialized and accounted for in a registry or other approved tracking system.

Offsets should:

- Be real
- Be additional
- Be based on a realistic baseline
- Be quantified and monitored
- Be independently verified
- Be unambiguously owned
- Address leakage
- Address permanence
- Do no net harm

2 The GHG Protocol and ISO 14064-Part 2 provide different, but mutually supportive, contributions to offset policy. The former provides commonly accepted guidance on offset quality, while the latter provides an auditable framework for offset certification. Neither, though, provides the level of technical detail necessary for the design of project type-specific protocols needed to implement an offset program.

Offsets Should Address Leakage. Leakage is defined as an increase in emissions outside of the project's emissions boundary that occurs as a result of the project's implementation. For example, avoiding deforestation through an offset project in one area could simply shift forest harvesting (and the resultant emissions) to a different region or country. Offset program design should include monitoring/verification plans and protocols that provide the necessary mechanisms to properly account for potential leakage over the life of an offset project.

Offsets Should Address Permanence. There is a risk that emission reductions generated by certain offset project types can be reversed, and thus are not permanent. Permanence is a type of project risk most often associated with biological and geologic sequestration of emissions. For example, reductions realized through a forest sector project could be reversed through a forest fire. Regulatory regimes should address permanence through policy mechanisms that ensure the minimization of loss in the case of project reversal. Such mechanisms include reserve pools, buffer accounts, and insurance, among others. Permanence is explored in greater detail in section IV, which is titled "GHG Reduction Project Categories and Considerations."

Offsets Should Do No Net Harm. Offset projects should not cause or contribute to adverse effects on human health or the environment, but should instead seek to provide health and environmental co-benefits whenever possible.

The three most common methods of project assessment are:

1. Project-Specific Assessments
2. Standardized Assessments
3. Hybrid Assessments

Operationalizing Offset Additionality and Baselines

As described in the previous section, two of the most important aspects of offset program design and project eligibility are determining the additionality of a project and establishing its emission baseline. There are a variety of approaches to determining additionality and establishing baselines, ranging from case-by-case evaluations of projects to the development of standardized assessment methodologies. A range of approaches are utilized in offset programs today, and each approach has advantages and disadvantages, which are discussed in greater detail in the following section.

The three most common methods for determining additionality, estimating baselines, and quantifying the emission reductions of an offset project are:

1. Project-Specific Assessments
2. Standardized Assessments
3. Hybrid Assessments

Project-Specific Assessments

Project-specific assessments are individual or case-by-case examinations of the unique circumstances of a proposed offset project. Individualized assessments may be made regarding a project's additionality, baseline, quantification, and crediting period.

Advantages of project-specific assessments

- Greater likelihood of correctly determining whether a project is additional because specific circumstances of a project can be assessed in detail.
- Greater potential for accurately quantifying real reductions in GHG levels because the baseline scenario and crediting period are tailored to the specific characteristics of a project.

Disadvantages of project-specific assessments

- Greater risk of subjectivity and less consistency across projects of a similar type. Subjectivity can also result in reduced transparency.
- Can be time and labor intensive, thereby increasing the transaction costs of a project.
- May reduce the flow of projects into the market by increasing the risk (i.e., uncertainty) faced by project developers, who must anticipate subjective judgments of regulators and accept the risk that their project may not be approved.

Standardized Project Assessments

Standardized approaches credit reductions on the basis of uniformly applicable criteria. A standardized approach typically defines additionality as a set of objective eligibility criteria based on an assessment of regulatory, financial, institutional, and technical conditions for a particular project type.

There are a number of different standardized approaches utilized in offset programs today to determine additionality, baselines and crediting periods. Standardized assessments can incorporate default or historical emissions rates or other data to ensure that realistic and transparent factors are used to quantify the emission reductions expected from a given project type. These approaches must be based on detailed technical and economic analysis of individual project types, technologies, and markets. They include:

- Performance standards, which are defined as projects whose characteristics meet criteria established for that project type. Examples of performance standards include:
  - Efficiency rates (energy per unit of output)
  - Emission rates (emissions per unit of output)
  - Market penetration rate (how commonly the technology is used within its sector)
- Technology benchmarks, which are defined as specific technologies in certain sectors and locations that are automatically deemed additional. For example, the use of methane digesters in certain countries or regions is rare and thus could be deemed additional. Separate technology benchmarks can also be used to establish an emissions baseline for a given project type.

Advantages of standardized assessments

- Minimizes or eliminates subjective judgment in the determination of baselines and additionality by using objective criteria.
- Streamlines the project development process, thereby reducing transaction costs and investment risk.
- Minimizes uncertainty to investors, and therefore risk, regarding offset project eligibility and the number of offsets generated by a given project type.
- Administratively simple to implement once established.

Disadvantages of standardized assessments

- Can be costly and time-consuming to develop rigorous standardized criteria and methodologies for the wide variety of potential project types.
- Accepts a certain amount of free-riders (i.e., non-additional tons) and inaccuracy by generalizing additionality assessments and quantification processes.
- Can limit the types of offset projects allowed in the market to only those for which standardized criteria and methodologies can be developed.
- Can be difficult to account for different market and environmental conditions in various regions and regulatory systems.
- Can be difficult to accurately account for leakage.

Hybrid Assessments

In their pure forms, project-specific and standardized assessments represent the two ends of a spectrum that encompasses a broad range of possible combinations. Most assessment methodologies used in the voluntary and regulatory markets are what are known as hybrid assessments, combining elements of both project-specific and standardized methodologies to balance the strengths and weaknesses of both. The advantages and disadvantages of a hybrid approach depend upon the balance struck between the two assessment methods.

Although standardized approaches are often advocated in principle, all approaches will in reality be some hybrid of standardized and case-by-case assessments. The assessment of offset projects entails a certain measure of project-specific analysis. No two projects are exactly the same in every respect, and individualized expert judgment is often required to ensure that reasonable and accurate estimations of a project's reductions are properly credited.

As the carbon market matures, more organizations are publishing sector-specific protocols for offset projects that utilize one or more of these approaches. Some of these protocols include a step-by-step process of evaluating a GHG emission-reduction project within a specific sector and generally include:

- Standards for determining additionality;
- Standardized factors and guidance for establishing a credible project baseline; and,
- Instructions on procedures for quantifying offset credits.

Offset protocols are currently available from regulatory bodies such as the Clean Development Mechanism and Joint Implementation program under the Kyoto Protocol, the Alberta Offset System in Canada, and the Regional Greenhouse Gas Initiative in the United States. Protocols are also available through a number of voluntary offset programs and registries including: the California Climate Action Registry, Environmental Resources Trust's GHG Registry, and EPA Climate Leaders Program.

OQI supports the development of cost-effective, robust, and flexible offset project assessment tools that provide a rigorous and transparent framework for the evaluation of offset projects.

Recommendation on Project Assessment Type

OQI supports the development of cost-effective, robust, and flexible offset project assessment tools that provide a rigorous and transparent framework for the evaluation of offset projects. Regulation should strive to integrate the transparency and consistency of standardized approaches, while capitalizing on the flexibility and adaptability of project-specific approaches. For this reason, OQI recommends the hybrid approach to developing regulations for the assessment of offset project additionality, baseline establishment, quantification, and crediting periods. We believe that a hybrid approach strikes the best balance between transparency and standardization, while taking into account the consideration of project-specific circumstances. Emerging regulatory regimes should build on the existing groundwork that has been completed at the regional and international levels, and seek to design policy that incorporates the lessons learned from current activities, while allowing for flexibility, innovation, and adaptation over time.

III. OFFSET POLICY DESIGN PRINCIPLES AND RECOMMENDATIONS

This section presents the key high-level design principles OQI recommends for the optimal incorporation of offsets into emerging climate change mitigation policies at the state, regional, and federal levels.

Regulatory Offset Programs Should Ensure High Environmental Integrity. Environmental integrity—defined as the achievement of real, measured reductions in emissions—should be the primary objective of any offset policy.

Regulatory Offset Programs Should Be Accurate. Quantification and baseline assessments should strive to be accurate in the accounting and calculation of GHG emission reductions. Methodological selection should be conservative to ensure that offsets are not overestimated and uncertainties are reduced as far as practicable.

Regulatory Offset Programs Should Ensure That Offsets are Not Double Counted. Only one ton of offset credit should be created by one ton of GHG reductions, and this credit should only be allowed to count once towards any GHG reduction requirement.

Regulatory Offset Programs Should Include Multiple Greenhouse Gases. GHG regulation should, at a minimum, cover all six categories of greenhouse gases identified by the Intergovernmental Panel on Climate Change (IPCC): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perflurocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF_6).

Regulatory Offset Programs Should Include Broad Sector Coverage. Offset policy should be designed to take advantage of a wide variety of emission reduction opportunities in uncapped sectors where acceptable standards of offset quality can be met.

Regulatory Offset Programs Should Not Restrict Offset Eligibility by Geographic Source. Because GHGs accumulate both uniformly and globally in the atmosphere, the location of an emission reduction is immaterial to its climate change impacts. To capture the most cost-effective emission-reduction opportunities first, regulations should not place limits on the location of offset projects based solely on geography. For example, there may be political pressure to incentivize domestic offsets through geographic limits; however, many of the lower-

cost emission-reduction opportunities located internationally could be foregone if these limits are implemented in future regulatory systems. OQI recognizes that offset projects can have important local impacts and co-benefits, and regulation should be designed to ensure that these non-GHG considerations are adequately addressed, while recognizing the global nature of GHG emission impacts.

Regulatory Offset Programs Should Establish Reasonable Offset Crediting Periods. The crediting period is the time during which a specific offset project is eligible to generate and sell offset credits. These periods are intended to reflect the duration for which a project is considered to be additional. The period length can vary depending on the project's type or sector, and the period can range from as little as two years to as many as 100 years. (Generally, project crediting periods greater than twenty-five years are used only for sequestration projects, in which carbon dioxide is removed from the atmosphere over many years.) Predefined project crediting periods send important market signals to project developers and other market participants, but regulators will have to carefully assess the relative merits of different crediting periods on various project sectors and types when crafting offset rules.

One way of ensuring that project crediting periods accurately reflect a project's additionality is through the use of multiple crediting periods. Regulation can establish an initial crediting period (generally between five and ten years), and upon completion of the first crediting period, project proponents may apply for a second (usually equivalent) crediting period. At this time, program administrators can reassess the project against current market conditions and determine whether a subsequent crediting period is appropriate. Multiple crediting periods are employed in both the Clean Development Mechanism under the Kyoto Protocol as well as in the Regional Greenhouse Gas Initiative in the United States.[3]

OQI recommends conservative, multiyear, and potentially renewable crediting periods that provide certainty to market participants and regulated entities, which will be critical to market development in the early years of a regulatory program.

Regulatory Offset Programs Should Exclude Forward Crediting But Allow Forward Selling. Forward crediting and forward selling are distinct activities that are often confused. Forward crediting is defined as issuing tradable offset credits before the actual emission reduction occurs and is verified. OQI believes that credits should only be issued on an ex post basis after reductions have been verified, and thus forward crediting should not be allowed.

Forward Crediting vs. Foward Selling

Forward crediting and forward selling are distinct activities that are often confused.

Forward crediting is defined as the issuance of tradable offset credits before the actual emission reduction occurs and is verified.

Forward selling is defined as the sale of rights to future emission reductions in advance of an offset project's implementation, or occurrence of the GHG emission reductions.

3 Under the Regional Greenhouse Gas Initiative all project types, except afforestation, are eligible for an initial ten-year crediting periods with the option to reapply for a second ten-year period. Afforestation projects are eligible for a sixty-year crediting period.

In contrast, forward selling of offset credits is the sale of rights to future emission reductions in advance of the project's implementation, or occurrence of the GHG emission reductions. Forward selling can provide critical upfront capital and assurances of salability for project developers. For projects in which reductions accrue over long periods of time (such as forestry and other sequestration projects), forward selling can be the deciding factor in a project's implementation.

OQI supports allowing market participants to forward sell when necessary, and recognizes that such activity cannot be easily controlled or regulated. The purchase of forward sold offsets credits is essentially a price-risk-hedging mechanism. However, the purchasing entity should not be allowed to use the credits to meet GHG reduction requirements until those credits have been delivered, verified, and registered with the appropriate entity.

Regulatory Offset Programs Should Avoid Quantitative Restrictions on Offset Supply and Use. There are strong economic and environmental arguments against limiting the use of offsets to achieve emission-reduction mandates; the most important of which is that the location of an emission reduction is immaterial to its impact on global GHG levels. At the same time, legitimate concerns exist that technological change will not be properly incentivized in capped sectors if large amounts of offsets from other sectors are allowed. OQI believes these concerns should be weighed against the advantages of high quality offsets, which include access to more cost-effective GHG reductions and the promotion of technology change in uncapped sectors. In fact, by lowering the cost of the total system, the use of offsets could allow for the implementation of a more stringent cap, which would result in even greater emission reductions in both the near- and long-term. Therefore, OQI recommends against the use of quantitative offset restrictions.

If a quantitative restriction on offsets is nonetheless desired by policymakers, careful consideration should be given to how and where that limit is imposed in order to avoid undue market distortion.

There are two primary types of limiting mechanisms currently being considered by policymakers: usage limits and supply limits. Usage limits restrict the number of offset credits that are eligible for use in meeting emission-reduction targets (this is most commonly expressed by a percentage of the total emission reductions or entity-level emission reduction requirements that can be met through offsets). Supply limits establish a predetermined number of offset credits that are issued in a given compliance period. Regardless of the number and type of offset projects available in the larger market, only those that were able to obtain credit through the regulatory supply program would be eligible for compliance use.

Supply limits would not provide investment certainty to project developers and could be problematic for those projects that have a multiyear crediting period, particularly if projects must reapply for crediting approval on a yearly basis.

Moreover, a limit on the available supply of eligible offset credits for use in a compliance system could have significant price implications as regulated entities compete for the limited pool of offset credits set by the supply limit.

OQI does not support the use of quantitative limits on the use of offsets. If a limiting mechanism is established, a usage limit is less likely to disrupt the market than a supply limit, as it creates a broader supply from which regulated entities can draw and provides more certainty to project developers. Limitations on offset usage will likely result in lower-cost offset credits when compared with offset supply limits, as supply would not be artificially constrained and the market would have adequate liquidity.

Offset credits in excess of those allowed for compliance through limiting mechanisms could potentially be sold into the voluntary market or to international compliance markets.

Policymakers must weigh a range of factors when considering establishing limiting policies such as supply, usage, and geographic restrictions on offset use for compliance. In general, policy should be crafted to distort the market as little as possible, and to ensure that emission-reduction goals can be met in the most efficient, credible, and cost-effective manner possible.

Regulatory Offset Programs Should Be Transparent. The standards and processes governing offset projects should be developed and implemented in an open and transparent manner and well-defined in regulation in order to ensure credibility and reduce uncertainty for investors. Similarly, offset project assessment activities should be open and transparent, except where legitimate and significant confidentiality issues exist.

Regulatory Offset Programs Should Incorporate Hybrid Offset Project Assessment Methodologies. All potential offset projects must be assessed both to determine their eligibility and to establish a means of quantifying the reductions. OQI supports the development of cost-effective, robust, and flexible offset project assessment tools that provide a rigorous and transparent framework for the evaluation of offset projects. OQI believes that a hybrid of project-specific and standardized methodologies to address additionality, baseline establishment, quantification of emission reductions, and setting of crediting periods will strike the best balance between administrative simplicity and quantification certainty, while taking into account the consideration of project specific circumstances. Emerging regulatory regimes should build on the existing groundwork that has been completed at the regional and international levels, and seek to design policies that incorporate the lessons learned while allowing for flexibility, innovation, and adaptation over time.

Definition of Usage Limit

A restriction on the number of offset credits eligible for use in meeting emission reduction targets. Usage limits are most commonly expressed by a percentage of the total emission reductions or the entity-level emission reductions requirements that can be met through offsets.

Definition of Supply Limit

The establishment of a predetermined number of offset credits that may be issued (issuable) in a given compliance period.

Offset Program Linkage

Where practical, emerging regulatory regimes should be designed to be as compatible as possible with other existing and emerging regimes, both domestically and internationally (as long as those regimes have high environmental integrity).

Regulatory Offset Programs Should Allow for Adaptation and Adjustment. GHG emission-reduction systems should be flexible yet comprehensive. Changes in the overall program design, as well as details of assessment protocols for different project types, should be evaluated and incorporated regularly to ensure the environmental integrity and effectiveness of an offset mechanism. Policy and regulatory reviews should occur at long enough intervals to allow for investment certainty. Except under extreme circumstances, policy changes should not be applied retroactively or without ample warning, in order to avoid leaving market participants with stranded investments that were made in good faith under existing rules.

Regulatory Offset Programs Should Include a Mechanism for the Addition of New Project Types. Offset programs should allow and encourage the development of new offset project standards and protocols for new and innovative offset project types, and include a mechanism for their incorporation into the program on an ongoing basis.

Regulatory Offset Programs Should Have a Centralized Offset Program Administrator. OQI recommends the establishment of a centralized authority that will administer and implement an offset program. This authority should have the ability to make necessary decisions and should be capable of doing so in a timely and transparent fashion. In regional contexts, which involve the linking of multiple jurisdictions into a single offset program, a centralized authority should, at a minimum, have a strong coordination role to ensure comparable decisions are made regarding the program's administration and implementation across the participating jurisdictions.

Regulatory Offset Programs Should Link With Other GHG Trading and Offset Systems. Where practical, emerging regulatory regimes should be designed to be as compatible as possible with other existing and emerging regimes, both domestically and internationally (as long as those regimes have high environmental integrity). In particular, mitigation policies should build on and enable linkage with the international frameworks already in place. Offset standards and markets should work towards the recognition of a globally fungible offset credit commodity, which will increase global liquidity and market efficiency.

Regulatory Offset Programs Should Consider Diverse Geopolitical Contexts When Designing Offset Provisions. Economic and political development and other country-specific circumstances should be considered when developing offset policy, particularly with regard to additionality criteria and quantification protocols. Offset standards that recognize the different circumstances from which projects originate are essential. At the same time, this flexibility should not be allowed to compromise the environmental integrity of mitigation policies.

Regulatory Offset Programs Should Allow Both Offset Projects and Programs of Activities. OQI recommends that both projects and "programs of activities" (PoAs) should be eligible to generate offset credits. Projects include single-site projects that are awarded credits for reductions resulting from actions on that site, while a PoA includes many small reduction projects that are dispersed over a larger geographical area, such as the implementation of a similar GHG reducing technology across multiple sites in a county or state. Emission reductions from a PoA can then be aggregated, which can assist in obtaining financing for small-scale projects that are easily replicated. For example, the installation of an auxiliary power unit (APU)[4] on a fleet of trucks owned by multiple entities could be considered a PoA.

Regulatory Offset Programs Should Establish a Reasonable Start Date for Offset Project Crediting. The project crediting start date is the date from which offset projects are eligible to generate and be awarded offset credits. This date has important implications for project investors wishing to act in advance of regulation. Ideally, the project crediting start date would be set such that legitimate early actors are recognized for their pre-regulatory activities, while not awarding excessive credits for activities that potentially would have occurred regardless of the expectation of a GHG regulation. OQI recommends that the start date for project crediting be set at least three to five years in advance of emission allowance issuance from a new regulatory regime.

Regulatory regimes should also consider separating the issue of offset credit issuance from the issue of start date of the offset project. For example, an eligible project that began in 2005 might only be eligible to sell offset credits from the time a program came into effect, e.g., 2008. The total allowable offset crediting period for that project type would be the regulatory standard for an initial crediting period; emission reductions that occurred prior to the regulatory program's implementation would not be credited, but could be eligible for use in a voluntary market.

4 Auxiliary power units are power generating units installed on long haul trucks or freight trains that provide an alternative source of power during stops and mandated layover periods.

IV. GHG REDUCTION PROJECT CATEGORIES AND CONSIDERATIONS

Introduction and Recommendations

The universe of GHG emission-reduction projects encompasses a wide variety of project types and activities, ranging from the installation of methane digesters, to fuel switching in the industrial and transportation sectors, to renewable energy and energy efficiency measures. Generally speaking, all GHG reduction projects fall into three distinct categories:

- Direct emission reductions (projects that occur at the project site)
- Indirect emission reductions (projects that cause an emission reduction to occur at a location other than the project site)
- Sequestration (projects implemented through an activity that removes and stores carbon dioxide or other GHGs from the atmosphere, or avoids the release of stored carbon into the atmosphere)

Broadly speaking, OQI believes that direct emission-reduction projects at facilities not covered by a cap-and-trade program are best suited for use in a regulatory offset program.

We believe that indirect emission-reduction projects are best incentivized through complementary policy measures and alternative funding mechanisms. This is due to a variety of reasons that range from difficulty in establishing credible baselines for certain project types, to challenges in establishing clear ownership over emission reductions (see below). However, many of the most important indirect emission-reduction opportunities lie in the energy efficiency and renewable energy sectors; if these sectors are disallowed or significantly restricted from participating in the regulatory offset market, alternative incentive mechanisms must be established and deployed.[5]

5 OQI believes that while indirect emissions reductions are not appropriate as high quality offsets, a high priority should nonetheless be placed on funding and encouraging the wide scale deployment of renewable energy and energy efficiency projects. Mechanisms such as allowance set-asides in cap-and-trade systems for existing and new renewable plants, aggressive Renewable Portfolio Standards, and tax credits or feed-in tariffs are all appropriate means of stimulating the wide-scale deployment of renewable energy.

Similarly, energy efficiency is one of the most cost-effective and significant sources of GHG reductions in the near to medium term, and OQI believes it should be strongly incentivized through a combination of regulation and market-based incentive programs. Mechanisms such as demand-side management, energy-efficiency standards, energy efficiency certificate mandates, and a low-interest government revolving loan fund are all appropriate means of stimulating energy efficiency.

Finally, OQI believes that biological sequestration is a vital category of mitigation opportunity, yet also recognizes the challenges inherent in integrating biologically based sequestration credits into a regulatory offset framework. The GHG mitigation community is actively engaged in developing mechanisms to address the challenges posed by biological sequestration projects (see the following section). OQI is optimistic that appropriate policy mechanisms and program design criteria can be put into place to ensure that biological sequestration activities can play a credible role in the offset market. OQI intends to further evaluate this issue and to develop a more detailed set of recommendations in the future.

The following section presents the various types of GHG reduction projects in more detail and evaluates their potential role in offset policy. OQI has focused on GHG reduction projects located within the United States, and the analysis presented here is reflective of current U.S. market conditions. Offset project eligibility should be evaluated in the context of the regulatory and political circumstances of the jurisdiction in which a particular project is located.

Direct Emission Reductions

Direct emissions reductions occur at the project site. Examples include:

- The substitution of higher GHG emitting fuels with lower GHG emitting fuels
- Operational improvements at industrial facilities that reduce onsite consumption of fossil fuels
- The installation of idle-reduction devices on heavy duty equipment such as semi-trucks and trains
- The capture and destruction of GHGs at landfills, agricultural operations, and coal mines.

Direct emission-reduction projects are the simplest and most straightforward to incorporate into an offset program. These reductions tend to be the most easily verified because the emission reductions occur on-site, have a clear boundary, and can be most easily quantified. When emission reductions occur at a project site, there is also little risk that an entity other than the project developer will claim ownership of the reduction, thus these projects are unlikely to face the potential double counting of emission reduction benefits.

For these reasons, OQI recommends that direct emission reductions should be the preferred source of offset credits for regulatory regimes.

GHG Emission-Reduction Project Categories

Direct
Emission reductions that occur at the same location the reduction activity is implemented.

Indirect
Emission reductions that occur at a location other than the location or place a reduction activity is implemented.

Sequestration
The sequestration of GHGs is defined as an activity that removes and stores carbon dioxide or other GHGs from the atmosphere, or avoids the release of stored carbon into the atmosphere.

Indirect Emissions Reductions

Indirect emissions reductions occur at a location other than the project site. Examples include:

- Energy efficiency and renewable energy projects that cause power plants to generate less electricity and thereby emit less carbon dioxide.
- Material displacement that avoids emissions, e.g., the use of fly ash in concrete that reduces demand for cement and lowers cement sector emissions.

The fact that the actual emissions reduction occurs somewhere other than the primary project site has important implications for the ownership of, and claims to, indirect reductions. Offset credits must represent a clear property right, and sellers must therefore hold unambiguous legal title to the associated GHG emission reduction in order to prevent multiple parties from making claims against the same reduction. With indirect emission reductions this delineation becomes muddled, as the right to the reduction could be double counted, or claimed twice—once by the project implementer and again by the entity that is actually producing fewer emissions.

Frequent examples of this occur in the electricity sector, where the majority of indirect reduction projects take place, either through the implementation of energy efficiency measures or through the addition of renewable energy to the grid. Energy efficiency and renewable energy projects can result in emission reductions in one of two ways: they can reduce the generation output from existing fossil fuel power plants on the grid to which the project is connected, or they can reduce the need to add fossil-fueled generating capacity to the grid in the future.

However, the interconnected nature of the U.S. electricity grid makes it virtually impossible to determine where particular electrons were generated, and thus offset buyers and sellers cannot accurately determine which power generating units were affected by the implementation of an indirect emission-reduction project. In a regulatory regime in which the electricity sector is capped, the inclusion of offsets from indirect emission-reduction projects could thus lead to double counting—once by the project implementer and again by the fossil-fueled generator that is under an emissions cap. While this example focused on the electricity sector, all indirect emissions-reduction projects face similar concerns regarding double counting and ownership, regardless of sector.

Due to these concerns, OQI does not recommend that indirect reduction projects be approved to generate offset credits for use in a cap-and-trade system in the United States, except where the double counting and ownership issues are resolved.

Biological Sequestration of Greenhouse Gases

The sequestration of GHGs is defined as an activity that removes and stores carbon dioxide or other GHGs from the atmosphere, or avoids the release of stored carbon into the atmosphere. Biological sequestration projects are the most common and occur through natural processes that remove carbon dioxide from the atmosphere. Forests, grasses, and rangelands all sequester carbon and can be eligible to generate offset credit when they meet established criteria. Examples of biologically based emission sequestration projects include:

- The cultivation of new forests and/or grasslands
- Managing forests to increase sequestration
- Changes in farming practices, such as soil management activities [6]

Avoided emissions is a subcategory of biologically based emission reductions. Terrestrial ecosystems store large amounts of carbon that can be emitted as a result of activities such as deforestation and certain agricultural practices. Incentivizing activities that avoid the release of sequestered carbon has emerged as an important component of comprehensive climate change policy. Examples of projects that can avoid the release of sequestered carbon include:

- Avoiding deforestation that occurs when land is converted to other uses such as development and agriculture
- Changes in agricultural practices to reduce soil disturbance from tilling and other activities

Biological Sequestration and Offsets: Considerations and Options

Considerations

There are three primary challenges in generating offset credits from biological sequestration projects:

- Baseline establishment
- Permanence
- Leakage

Baseline Establishment. Emission reductions are calculated and credited relative to an emissions baseline. Biological systems, particularly forests, are dynamic places with constant fluctuations of carbon sequestration levels over their lifetime, thereby requiring approaches to baseline calculation that are equally dynamic. Models and other established tools can assist in this effort, but determining baselines for biological projects can be more complex, but still attainable, than for direct, technology-based emission-reduction projects.

6 The Nicholas Institute for Environmental Policy Solutions. Harnessing Farms and Forests in the Low-Carbon Economy: How to Create, Measure, and Verify Offsets. Duke University Press. Durham and London. 2007.

Permanence. GHGs removed or stored by biologically based projects can be reversed, and thus there is a risk that they will not be permanent. In the case of biological sequestration projects, the GHGs are sequestered in the biological matter (e.g., wood, grasses, crops) only until the matter decomposes or is combusted.

Forestry-based offset projects face both intentional (land conversion, harvesting) and unintentional (wildfire, disease) permanence risks. For example, if there is a wildfire, some of the carbon sequestered in the forest would be released into the atmosphere and a portion of the offset credits could be negated. Program administrators should proactively develop ways to address and mitigate the risk associated with these types of projects, including establishing legal mechanisms (e.g. conservation easements, deed restrictions) to address intentional reversals and other policy mechanisms (e.g. reserve pools, buffer accounts, insurance) to address unintentional losses.

While some advocate a special "temporary offset" category for certain types of potentially non-permanent emission reductions, OQI recommends against this approach due to its barriers to inter-market fungibility, additional administrative requirements, and movement towards a globally tradable and credible commodity. OQI believes that if sufficient assurances and measures are in place to ensure replacement of offset credits in the event of project reversal, offset credits sourced from projects that face permanence issues should be treated as any other reduction that meets the applicable offset eligibility requirements.

Leakage. Leakage is defined as an increase in emissions outside of a project's emissions accounting boundary that occur as a result of the project. Avoided deforestation and conservation forest management projects are commonly faced with the issue that deforestation could merely be shifted to another area to produce the needed amount of wood, thereby negating the environmental benefit of the offset project. It is possible to provide mechanisms, such as inventory reporting, to identify and mitigate potential leakage that might occur. Reforestation/afforestation projects are less likely to be affected by potential leakage impacts.

Options

OQI recognizes the challenges inherent in integrating biologically based sequestration credits into an offset framework. However, we believe that biological sequestration, particularly avoided deforestation, is a vital category of mitigation opportunity. Moreover, the GHG mitigation community is actively engaged in developing mechanisms to address the challenges posed by biological sequestration projects. A range of policy options to address these issues has begun to emerge, including:

- Insurance and bonding mechanisms to secure funding for replacement tons in the event of underperformance or reversal.
- Buffer accounts that provide additional reductions that can be tapped in the event of underperformance or reversal.
- Strict covenants and easements on the use of land and forested areas, as well as long-term leases.

OQI is optimistic that appropriate policy mechanisms and program design criteria can be put into place to ensure that biological sequestration activities can play a credible role in the offset market. OQI intends to further evaluate this issue and to develop a more detailed set of recommendations in the future.

APPENDIX

The Offset Quality Initiative

The Offset Quality Initiative (OQI) was founded in November 2007 to provide leadership on greenhouse gas offset policy and best practices. OQI is a collaborative, consensus-based effort that brings together the collective expertise of its six nonprofit member organizations: The Climate Trust, Pew Center on Global Climate Change, California Climate Action Registry, the Environmental Resources Trust, Greenhouse Gas Management Institute, and The Climate Group.

The four primary objectives of the Offset Quality Initiative are:

- To provide leadership, education, and expert analysis on the issues and challenges related to the design and use of offsets in climate change policy
- To identify, articulate, and promote key principles that ensure the quality of greenhouse gas emission offsets
- To advance the integration of those principles in emerging climate change policies at the state, regional, and federal levels
- To serve as a source of credible information on greenhouse gas offsets, leveraging the diverse collective knowledge and experience of OQI members

OQI Member Organization Profiles

The Climate Trust

The Climate Trust is a nonprofit organization founded in 1997. The Climate Trust's mission is to promote climate change solutions by providing high-quality greenhouse gas offset projects and advancing sound offset policy. The Climate Trust has directed $8.8 million in funding into 16 offset projects that are expected to offset nearly 2.6 million metric tons of carbon dioxide. As one of the oldest nonprofit GHG offset providers in the United States, The Climate Trust brings its unique perspective to policymakers at the state, regional, and national levels. The Climate Trust initiated and leads the Offset Quality Initiative.

Pew Center on Global Climate Change

The Pew Center on Global Climate Change was established in 1998 as a nonprofit, nonpartisan, and independent organization dedicated to providing credible information, straight answers, and innovative solutions in the effort to address global climate change. The Center engages decision-makers at the federal, state, regional, and international levels to achieve its goals for mandatory federal climate change policy and a post-2012 international climate agreement. The Center's Business Environmental Leadership Council (BELC), a group of 42 mainly Fortune 500 companies with over $2 trillion in combined revenue, is the largest U.S.-based association of corporations committed to advancing mandatory policy and business solutions to address climate change. The Pew Center is also a founding member of the influential U.S. Climate Action Partnership.

California Climate Action Registry

The California Climate Action Registry is a private nonprofit organization committed to solving climate change. It serves as a voluntary greenhouse gas (GHG) registry for entity-wide emission inventories, which was its originally mandated purpose when it was formed by the State of California in 2001. The California Registry also establishes standards for GHG emission-reduction (offset) projects. Through its Climate Action Reserve program, it adopts protocols for quantifying and verifying offset projects. The Climate Action Reserve also accredits and oversees independent verifiers and tracks the transactions of project offsets. The accuracy, transparency, and integrity of all of the California Registry's standards have earned it the reputation as a respected and internationally recognized leader in climate change issues.

Environmental Resources Trust

The Environmental Resources Trust (ERT), a business unit of the nonprofit Winrock International, is a leader in emerging markets for greenhouse gas (GHG) emissions trading. ERT operates the GHG Registry®. The GHG Registry is the oldest online platform in the world for international carbon trading and is the largest, non-government registry in the U.S. for tradable carbon offsets, with ~20 million tradeable offsets registered. In 2007, the GHG Registry facilitated the trade of 1.2 million offsets among GHG Registry member accounts, representing approximately 10 percent of U.S. market share for tradeable offsets. To date in 2008, the GHG Registry has facilitated the trade of 2.2 million offsets.

Greenhouse Gas Management Institute

The Greenhouse Gas Management Institute is a nonprofit organization focused on training and education. The Institute's mission is to train and develop a global community of experts with the highest standards of professional practice in measuring, accounting, and managing GHG emissions; meeting the needs of governments, corporations, and organizations large and small. The GHG Management Institute is training individuals in GHG management and accounting, as well developing programs to certify professionals who meet the highest standards of expertise and ethical conduct. The Institute also hosts the GHG Experts Network. With well over 1,000 participants, it is the largest network of such experts in the world. The Institute and the Network, together, are building the army of experts and professionals necessary for the development of a credible and robust GHG emissions trading marketplace.

The Climate Group

The Climate Group is an independent, nonprofit organization that works with government and business leaders to accelerate the transition to a low-carbon economy. Its coalition of proactive leaders —from government, business and NGOs—has demonstrated that the emissions reductions needed to stop climate change can be achieved while boosting profitability and competitiveness. Companies, states, regions, and cities around the world are realizing there are significant economic as well as environmental advantages of taking decisive action now. The Climate Group was founded in 2004 and has offices in the United Kingdom, the United States, China, India, and Australia.

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