Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

Midwestern Greenhouse Gas Reduction Accord

Western Climate Initiative

Ensuring Offset Quality: Design and Implementation Criteria for a High-Quality Offset Program

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Executive Summary

This whitepaper is a product of the Three-Regions collaborative process. The Three-Regions process includes member jurisdictions of the three sub-national greenhouse gas cap-and-trade initiatives in North America: the Midwestern Greenhouse Gas Reduction Accord (Midwestern Accord), the Northeastern and Mid-Atlantic Regional Greenhouse Gas Initiative (RGGI), and the Western Climate Initiative (WCI). It represents a consensus among the three regional programs on key offset policy design and implementation components that are necessary to ensure high quality offsets in a regulatory greenhouse gas cap-and-trade program.

Offsets provide a compliance flexibility mechanism that reduces the compliance cost of a cap-and-trade program, since more and varied emissions reduction opportunities may be used to meet a compliance obligation. Lower emissions abatement costs result in lower impacts on consumers, which allows for the pursuit of more aggressive emissions reduction targets. Examples of offset projects provided for in a number of programs include projects that capture and destroy methane from landfills, projects that avoid methane emissions from agricultural manure management, and afforestation and forestry management projects. Since offsets, if designed and implemented properly, maintain the integrity of the emissions cap while providing compliance flexibility, use of offsets avoids the implementation of flexibility mechanisms that undermine the emissions cap, such as a safety valve or price cap.

To be equivalent to an emissions reduction achieved at a regulated emissions source, an offset project, and the emissions reductions or removals achieved by the project, must be real, additional, verifiable, enforceable, and permanent.

Implementing a high-quality offset program also requires transparency, credible verification, and a degree of administrative flexibility over time. This includes clear and transparent project documentation requirements, high quality independent verification to support regulatory review, and regular program review and adjustment.

The three regional cap-and-trade initiatives have either implemented or intend to implement the offset component of their program through a standardized approach, to the extent possible. This approach, as outlined in this whitepaper, provides multiple benefits that improve both offset quality and program efficiency, compared to a project-by-project approach. These benefits include increased program transparency, a more objective project review process, reduced project

transaction costs, reduced financial risk for project developers, a reduction in market uncertainty, and a more streamlined project regulatory review process.

This document discusses key offset quality concepts and presents the consensus of the three regional cap-and-trade programs on the following core offset quality criteria.

Real

For a greenhouse gas offset to be "real," an offset compliance unit must represent one ton of CO_2-equivalent (CO_2e) greenhouse gas emissions reduction or removal (carbon sequestration) that results from an identified emissions reduction activity (i.e., a clearly identified action or decision). Offset project emissions reductions or removals must not be an artifact of incomplete or inaccurate accounting. Therefore, a project emissions or carbon sequestration baseline and project emissions reductions or removals must be quantified using accurate quantification methodologies and conservative assumptions where appropriate to account for measurement uncertainty. Quantification methodologies must appropriately account for all relevant greenhouse gas emissions sources and sinks and identified project leakage.

Additional

A greenhouse gas offset results from an emissions reduction or removal caused by a project specifically intended to compensate for emissions occurring elsewhere. A greenhouse gas emissions reduction or removal project is considered additional if the offset project activity would not have occurred in the absence of the offset program.[1] Because awarded offset compliance units allow a regulated entity to emit more than it otherwise would have been able to, the underlying offset project only provides a true emissions reduction benefit if the project would not have occurred absent the offset program—i.e., it is "additional" to activities that would have otherwise occurred in the absence of the offset program.

Verifiable

Offset projects and offset project emissions reductions or removals must be verifiable. Verification is necessary to ensure that an offset project is eligible and has met all program requirements and that the offset compliance units awarded are based on emissions reductions or removals that have actually occurred and been properly measured. As used here, the concept of verification applies to both evaluation of project eligibility (sometimes referred to as validation) and verification of periodic monitoring reports of greenhouse gas emissions reductions or removals achieved by a project (commonly referred to as verification).

[1] By extension, this also means that emission reductions, avoidance, or sequestration achieved by an offset project result in a lower level of net greenhouse gas emissions or atmospheric concentrations than would occur in the absence of the offset project.

Permanent

Greenhouse gas emissions reductions or removals achieved by offset projects must be permanent. Offset project emissions reductions or removals are considered permanent if they are not reversible or, if reductions or removals are reversible, certain programmatic requirements are met to ensure the permanence of the reductions or removals.

Enforceable

An offset is enforceable if the offset program has sufficient regulatory authority and enforcement mechanisms to compel compliance with its program requirements. To ensure that offsets are enforceable, any party submitting an offset project for regulatory review and that may receive an award of offset compliance units must already be subject to the jurisdiction of the appropriate regulatory agency or must voluntarily submit itself to the jurisdiction of the regulatory agency. The regulatory agency should also maintain authority related to the offset compliance unit itself, as it represents a limited authorization to emit a CO_2e ton of greenhouse gas issued by the regulatory agency.

I. Introduction

This whitepaper is a product of the Three-Regions collaborative process. The Three-Regions process includes member jurisdictions of the three sub-national greenhouse gas cap-and-trade initiatives in North America: the Midwest Greenhouse Gas Reduction Accord (Midwestern Accord), the Northeastern and Mid-Atlantic Regional Greenhouse Gas Initiative (RGGI), and the Western Climate Initiative (WCI). The Three-Regions process is a forum for each of the programs to share information related to the design and implementation of each of the regional cap-and-trade programs and to discuss issues related to potential future linking of the programs.

This whitepaper represents a consensus among the three regional programs on key offset policy design and implementation components that are necessary to ensure high-quality offsets in a regulatory greenhouse gas cap-and-trade program.

The whitepaper is intended to serve as both an internal policy document for use among the programs and as a public policy document to inform the development of comprehensive climate policy in North America. As an internal document, the whitepaper articulates key quality requirements for offsets and offset programs to facilitate potential future linking of regional cap-and-trade programs. Future linking of programs could include coordination of offset programs and offset reciprocity among programs, which would require that each program maintain minimum offset quality requirements and standards. As an external document, the whitepaper communicates common underlying offset quality concepts that are incorporated into the design and implementation of each of the regional cap-and-trade programs to inform the design and implementation of national cap-and-trade programs in the U.S. and Canada.

A. Introduction to offsets and the importance of offset quality

In a greenhouse gas cap-and-trade program, a greenhouse gas (GHG) offset ("offset") is a project-based greenhouse gas emissions reduction or removal that occurs outside the capped emissions sector or sectors regulated by the cap-and-trade program.[2] For each CO_2-equivalent (CO_2e) ton of greenhouse gas emissions reduction or carbon sequestration achieved by an offset project, the project is awarded an offset credit or allowance (a "compliance unit") that can be used by an emissions source in a capped sector to emit a CO_2e ton of greenhouse gas. Conceptually, an offset is used to allow a regulated emissions source to emit an additional ton of greenhouse gas in exchange for a ton of

[2] "Capped sector" as used in this whitepaper refers to the specific category or categories of emissions sources regulated through a cap-and-trade program (e.g., electricity generation facilities above a certain size threshold or industrial facilities above a certain annual emissions threshold). Capped sector may also refer to activities that indirectly reduce or increase emissions at a regulated source (e.g., electric end-use).

greenhouse gas emissions reduction or removal achieved outside of the capped sector(s) by an offset project activity (Figure 1). The regulated emissions source is allowed to emit more in exchange for achievement of an emissions reduction elsewhere.

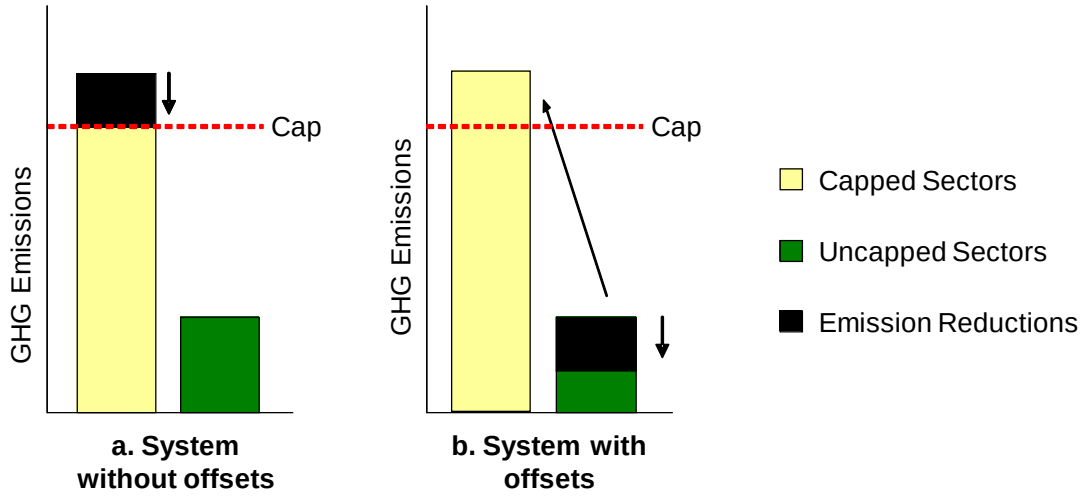

Figure 1. The Role of Offsets in Cap-and-Trade Programs[3]

Offsets provide a compliance flexibility mechanism that reduces the compliance cost of a cap-and-trade program, since more and varied emissions reduction opportunities may be used to meet a compliance obligation. Lower emissions abatement costs result in lower impacts on consumers, which allows for the pursuit of more aggressive emissions reduction targets. Since offsets, if designed and implemented properly, maintain the integrity of the emissions cap (the called for emissions reductions under the program) while providing compliance flexibility, use of offsets avoids the implementation of flexibility mechanisms that reduce the emissions reduction benefits achieved by the program, such as a safety valve or price cap.

Offsets result in the issuance of more compliance units in addition to the established emissions budget for a cap-and-trade program (the finite number of compliance units issued represents the emissions cap for regulated emissions sources). In order to maintain the integrity of the emissions cap, any offset compliance units that are issued must represent emissions reductions achieved outside capped sectors *as a result of the cap-and-trade program*. The premise is that rather than investing in more costly emissions abatement opportunities at regulated emissions sources, the owners or operators of a source (or a third party) are investing in lower-cost emissions abatement opportunities outside of the capped sectors.

[3] World Resources Institute, 2010

This basic premise means that the compliance obligation imposed by the cap-and-trade program is what drives investment in emissions reduction projects outside the capped sectors in order to generate offset compliance units.[4] Thus, there is a one-to-one relationship between emissions reductions achieved outside the capped sectors through an offset project and additional emissions permitted within the capped sectors. Net emissions to the atmosphere do not exceed the level of the established emissions cap because offsets represent equivalent emissions reductions or removals achieved elsewhere as a result of the cap-and-trade program. Absent this one-to-one relationship—the exchange of an emissions reduction elsewhere for an expansion of the emissions cap for regulated emissions sources—net emissions would exceed the level of the established emissions cap and the integrity of the emissions cap would be undermined. Simply put, the cap-and-trade program would not reduce the emissions it claims to.

B. Implications of offset quality

To maintain cap integrity, emissions reductions achieved through an offset should be functionally equivalent to emissions reductions achieved by a regulated emissions source. This has important implications for the quality requirements that an offset project must meet. In particular, emissions reductions or removals achieved through an offset project activity must meet functionally comparable standards to emissions reductions achieved by a regulated emissions source. An offset project must:

- be evaluated and verified (it must be eligible under the cap-and-trade program and implemented as claimed);
- achieve emissions reductions or removals that are properly quantified, monitored, and verified (as is required for regulated emissions sources); and
- achieve emissions reductions or removals that are permanent and enforceable (as is the case by default for regulated emissions sources).

In short, to be equivalent to an emissions reduction achieved at a regulated emissions source, an offset project, and the emissions reductions or removals achieved by the project, must be real, verifiable, permanent, and enforceable.

Perhaps most importantly, an offset project must occur *as a result of the offset component of the cap-and-trade program*, because more emissions from regulated emissions sources are being allowed in exchange for offset emissions reductions. This means that the offset project must be additional—it would not have happened anyway in the absence of the economic incentive created by the

[4] While this premise is straightforward, operationalizing this concept in order to evaluate offset project additionality is complex and requires workable, rigorous mechanisms, as discussed later in the whitepaper.

compliance obligation required by the cap-and-trade-program.[5] As discussed above, the concept of an offset rests on "exchanging" emissions reductions or removals that occur outside the capped sector(s) for allowing additional emissions from a regulated emissions source (Figure 1). In practice, this means that the compliance obligation of a cap-and-trade program is driving investment in emissions reduction opportunities outside the capped sector, in exchange for offset compliance units that can be used by a regulated emissions source for compliance. If an offset project that is awarded offset compliance units would have occurred anyway in the absence of the incentive provided by the offset component of the cap-and-trade program, then the award of offset compliance units would result in a net increase in atmospheric levels of greenhouse gases relative to those that would be achieved through the cap-and-trade program emissions cap (Figure 2). This outcome would undermine the cap-and-trade program's established emissions limitation and reduce the actual environmental benefits achieved by the program.

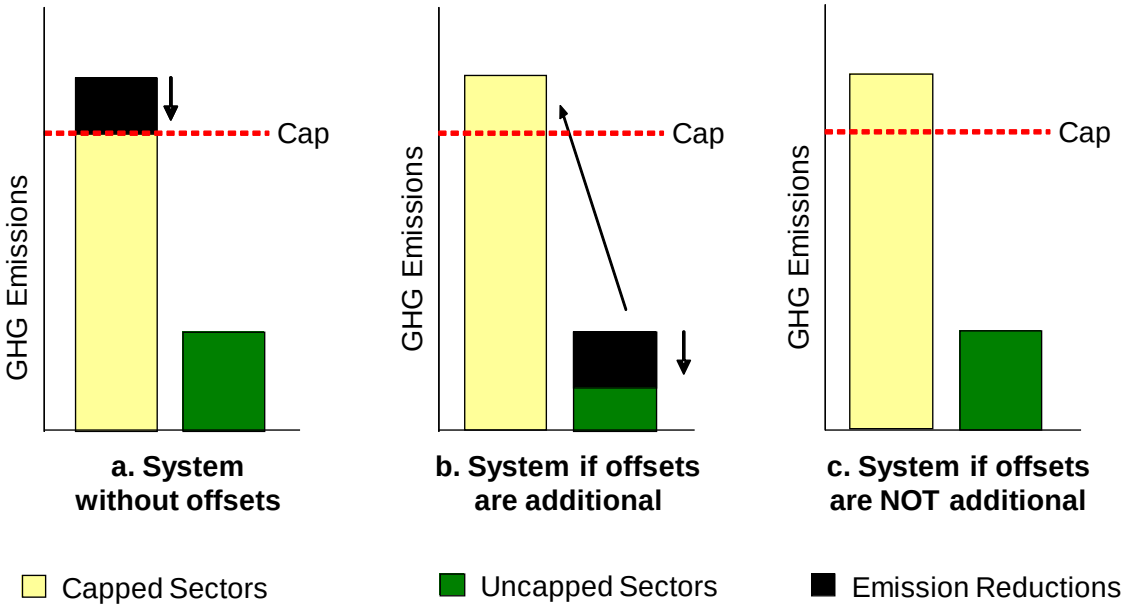

Figure 2. Impacts of Additional vs. Non-Additional Offsets on Emissions.[6]

In the absence of offsets (A), imposing a cap-and-trade program will result in emissions reductions in the capped sectors. Offsets provide regulated emissions sources with additional flexibility and allow them to meet a portion of their emissions obligations through reductions in an uncapped sector or sectors. When offsets are additional, the emissions reductions of the cap-and-trade program are preserved (B). However, if offset projects are not additional, and would have occurred in the absence of the program, then cap-and-trade program emissions benefits are

[5] Methods for operationalizing this concept and the complexities of evaluating offset project additionality are discussed in detail in Section II of the whitepaper.

[6] Bianco, Nicholas, "Stacking Payments for Ecosystem Services," WRI Fact Sheet, November 2009, World Resources Institute. Available at : http://pdf.wri.org/factsheets/factsheet_stacking_payments_for_ecosystem_services.pdf

lost (C), because the cap-and-trade program has not resulted in emissions reductions (either within the capped sector or through offsets).

To operationalize the additionality concept, assurance should be provided that an offset project was unlikely to occur absent the revenue stream provided by offset compliance units awarded through the offset component of the cap-and-trade program. Typically, this is done by evaluating an offset project in comparison to a "business-as-usual" baseline scenario that represents expected typical market activity that would have occurred in the absence of the project. To be eligible, the offset project must represent activity that is "in addition to" this expected typical market activity. This may involve a project-by-project assessment of financial data or market barriers, or the implementation of standardized criteria that represent activity that is significantly above standard market practice. Both types of evaluation strive to assure that the project would not have been implemented but for the anticipated revenue provided by the award of offset compliance units for project emissions reductions or removals.

The key offset quality criteria—real, additional, verifiable, permanent, and enforceable—are discussed in detail in the next section.

II. Key Offset Quality Criteria

This section provides an overview of the core attributes that ensure greenhouse gas emissions offsets are delivering their stated environmental benefits. These attributes are typically defined as real, additional, verifiable, permanent, and enforceable. The definitions and criteria presented here represent the consensus of the three regional greenhouse gas cap-and-trade programs, the Midwestern Accord, RGGI, and WCI.

Real

For a greenhouse gas offset to be real, an offset compliance unit must represent one ton of CO_2e greenhouse gas emissions reduction or removal (carbon sequestration) that results from an identified emissions reduction activity (i.e., a clearly identified action or decision). Offset project emissions reductions or removals must not be an artifact of incomplete or inaccurate accounting. Therefore, a project emissions or carbon sequestration baseline and project emissions reductions or removals must be quantified using accurate quantification methodologies and conservative assumptions where appropriate to account for measurement uncertainty. Quantification methodologies must appropriately account for all relevant greenhouse gas emissions sources and sinks and identified project leakage.[7] This includes adjusting project emissions

[7] Leakage occurs when greenhouse gas emissions or removals change outside the project boundary due to the implementation of the project. These changes in greenhouse gas emissions or removals may occur for a variety of reasons, including the shifting of emitting activities to other facilities or due to market forces indirectly impacted by the implementation of an offset project.

reductions or removals that are the basis for the award of offset compliance units to adequately account for leakage risk.

If offset compliance units are awarded in excess of the emissions reduction or carbon removal benefits that actually result from the offset project, then the integrity of the cap-and-trade program emissions cap will be compromised. This will result if the emissions reductions or removals claimed by a project are not in fact caused by the project, or if the emissions reductions or removals claimed do not actually occur. Projects may also be awarded excess offset compliance units if methodologies are employed that over-estimate the emissions reductions or removals achieved by the project. This can be avoided by employing conservative assumptions whenever there are uncertainties in quantifying emissions reductions or removals.

Meeting these goals also requires that an offset project and the offset compliance units awarded for the project be recorded in a transparent registry. This ensures that offset compliance units are only awarded once for each CO_2e ton of emissions reductions or removals occurring due to an offset project.

Additional

A greenhouse gas offset results from an emissions reduction or removal caused by a project specifically intended to compensate for emissions occurring elsewhere. A greenhouse gas emissions reduction or removal project is considered additional if the offset project activity (or activities) would not have occurred in the absence of the offset program.[8] Because awarded offset compliance units allow a regulated emissions source to emit more than it otherwise would have been able to, the underlying offset project only provides a true emissions reduction benefit if the project would not have occurred absent the offset program—i.e., it is "additional" to activities that would have otherwise occurred in the absence of the offset program.

While the concept of additionality is relatively straightforward, evaluating the additionality of an individual offset project can be complex. In practice, an offset project is considered additional if the project involves activities beyond standard market practice and the project is being implemented in response to economic incentives provided through the offset program (anticipated award of offset compliance units that have a market value). This does not necessarily preclude an offset project activity from receiving other economic incentives or providing other marketable ecosystem services or other economic products and services, provided it can be demonstrated that the offset program, alone or in combination with other incentives, is necessary to drive the implementation of the offset project (Figure 3).

[8] By extension, this also means that emission reductions, avoidance, or sequestration achieved by an offset project result in a lower level of net greenhouse gas emissions or atmospheric concentrations than would occur in the absence of the offset project.

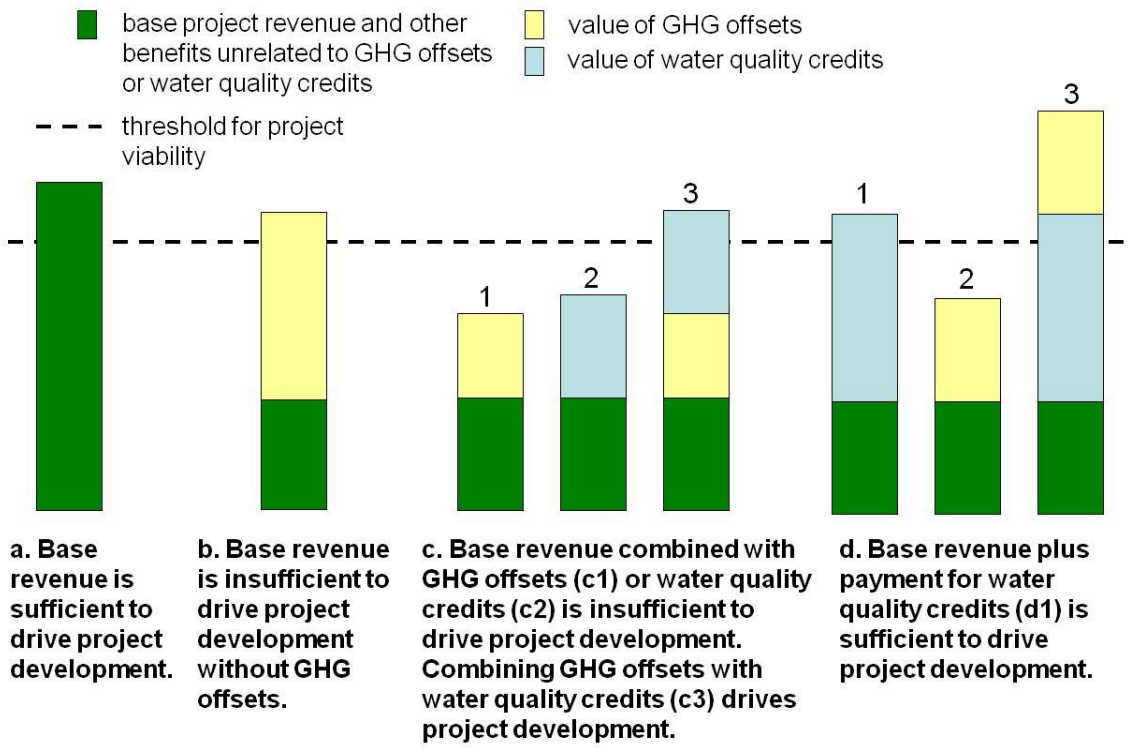

Figure 3. Additionality Evaluation, Considering Stacking of Multiple Project Incentives[9]

As shown in Figure 3a, some types of projects may be commonplace because they save the developer money or generate considerable revenue even without receiving offset compliance units ("GHG offsets"). Such projects are not additional. Figure 3b depicts a scenario where a project will not move forward without a carbon payment in the form of tradable offset compliance units. This project would be considered additional, and would be eligible for the award of offset compliance units. A project should be eligible for stacking of multiple project incentives if multiple incentives are necessary to drive project development. This scenario is depicted in Figure 3c, where neither offset compliance units (3c1) nor water quality credits (3c2) alone are sufficient to drive project development. However, when combined these two payments are sufficient to drive project development (3c3). However, if water quality credits alone are sufficient to drive project development without the need for carbon incentives in the form of offset compliance units (3d1), then offset compliance units do not drive project development, and therefore the project should not be eligible for stacking of multiple incentives under a cap-and-trade program.

An offset project should be evaluated to ensure that the project is not required by any local, state/provincial, or federal law, regulation, or administrative or judicial order. If a project or activity is required by regulation, law, or administrative or judicial order it is assumed to be implemented to achieve compliance with the law, and not to generate offset compliance units. Therefore, awarding offset compliance units for an offset project that involves mandated activities would

[9] Adapted from Bianco, Nicholas, "Stacking Payments for Ecosystem Services," WRI Fact Sheet, November 2009, World Resources Institute. Available at : http://pdf.wri.org/factsheets/factsheet_stacking_payments_for_ecosystem_services.pdf

undermine the emissions limitation of the cap-and-trade program. This concept is commonly referred to as "regulatory additionality".

In addition to ensuring that a project is additional to regulation, the offset project activities must be shown to exceed a business-as-usual or "without-project" baseline scenario. The business-as-usual baseline scenario represents the expected activity that would occur in the absence of the offset program incentive.[10] Offset projects should only be awarded offset compliance units for greenhouse gas emissions reductions or removals if the project represents activities that exceed the activities under an approved business-as-usual baseline scenario.

Verifiable

Offset projects and offset project emissions reductions or removals must be verifiable. Verification is necessary to ensure that an offset project is eligible and has met all program requirements and that the offset compliance units awarded are based on emissions reductions or removals that have actually occurred and been properly measured. As used here, the concept of verification applies to both evaluation of project eligibility (sometimes referred to as validation) and verification of periodic monitoring reports of greenhouse gas emissions reductions or removals achieved by a project (commonly referred to as verification).

Prior to verification of project emissions reductions or removals, an offset project must be validated. Project validation confirms that the offset project either has been or will be implemented and that the project meets all program eligibility and other requirements. Typically, validation also includes a review of the adequacy of the project monitoring and reporting plan.

Emissions reductions or sequestration achieved through an offset project typically accrue over a multi-year period of time, which requires ongoing monitoring. As a result, robust monitoring and verification plans should be in place to ensure that project activities are monitored and project emissions reductions or removals are appropriately measured and recorded over time. Emissions reductions or removals should have occurred and been verified before the award of offset compliance units (sometimes referred to as *ex post* crediting). An emissions reduction or removal and the related offset compliance unit that is awarded can be verified if it results from a project for which the project activities and emissions reductions or removals can be readily monitored and quantified with reasonable precision and certainty, and the completeness and validity of project data underlying project assertions can be independently substantiated.

[10] This means that the proposed project activity could itself be considered to occur under a baseline scenario, and therefore would be non-additional. When considered as part of a "without project" scenario, this means that a valid claim could not be made that the project would not have occurred absent the incentive provided by offset compliance units; the without project scenario and project scenario would effectively be the same, and the project would be non-additional.

This requires that a given project's emissions reductions or removals are well documented and transparent, such that an objective ex-post review by a qualified verifier can be conducted.

Permanent
Greenhouse gas emissions reductions or removals achieved by offset projects must be permanent. Offset project emissions reductions or removals are considered permanent if they are not reversible or, if reductions or removals are reversible, certain programmatic requirements are met to ensure the permanence of the reductions or removals.

Offset project emissions reductions or removals should be comparable to emissions reductions by emissions sources regulated under the cap-and-trade program. Emissions reduced from a regulated emissions source during a specified period of time are permanent by default, since the absence of emissions during that past compliance period cannot be reversed. If the emissions reductions or removals provided by an offset project are not permanent, then the emissions limitation of the cap-and-trade program can be compromised if reversals occur.

For some offset project types, ensuring permanence is straightforward. For example, methane captured and destroyed through oxidation cannot reform into methane. As a result, the emissions reductions are permanent because they cannot be reversed. However, other offset project types face a risk of reversal. Specifically, the sequestration of carbon dioxide through biological means inherently bears the risk of reversal, as carbon can be released through a variety of causes, including fire, insect infestation, natural decay, and human caused reversals such as unsustainable harvesting. Therefore, if projects that sequester carbon through biological means are to be awarded offset compliance units, it is critical that programmatic safeguards be established to minimize the risk of reversal and that mechanisms be established to address and account for any reversals that may occur.

Enforceable
An offset compliance unit must be enforceable. An offset is enforceable if the offset program has sufficient regulatory authority and enforcement mechanisms to compel compliance with its program requirements. To ensure that offsets are enforceable, any party submitting an offset project for regulatory review and that may receive an award of offset compliance units must already be subject to the jurisdiction of the appropriate regulatory agency or must voluntarily submit itself to the jurisdiction of the regulatory agency. The regulatory agency should also maintain authority related to the offset compliance unit itself, as it represents a limited authorization to emit a CO_2e ton of greenhouse gas issued by the regulatory agency.

Offset compliance units must only be awarded after the project proponent demonstrates compliance with offset program requirements and protocols to the satisfaction of the issuing authority.

In the event of demonstrated non-compliance with any offset program requirement, enforcement measures may include: 1) mandated on-site changes to a project to bring it into compliance with program requirements; 2) administrative fines or penalties; 3) cancellation of awarded offset compliance units; and 4) mandated procurement and submittal to the regulatory agency of offset compliance units from the market to make up for awarded offset compliance units related to an offset project that is non-compliant with program requirements.

Failure to provide for the enforceability of offsets creates the potential for fraud and risks compromising the integrity of the cap-and-trade program emissions limitation. It could also undermine the establishment of a liquid offset market by creating potential uncertainty related to the market value of offset compliance units, both for regulated emissions sources using offsets for compliance and other market purchasers of offset compliance units.

III. Key Process Requirements Critical to Offset Quality

Implementing a high-quality offset program requires transparency and high-quality verification. Key process requirements that impact offset quality are discussed below.

A. Project documentation

Offset projects typically involve documentation of complex activities in diverse applications and locations. As a result, project documentation should be transparent and understandable, and readily accessible by the public. Transparency is key to assuring program integrity and maintaining public and market confidence in offset emissions reductions and removals, and by extension the market value of offset compliance units.

An offset program should have a secure yet transparent tracking system for offset projects and the award of offset compliance units (a project registry or tracking system). The offset tracking system and program regulatory requirements and administrative protocols should include measures to ensure against double counting of project emissions reductions and removals and double award of offset compliance units, and to assure that offset compliance units are properly assigned. At a minimum, offset project proponents should be required to attest that they hold the rights to project emissions reductions or removals, or have been assigned such rights, and also disclose any reporting

related to a project to another voluntary or mandatory greenhouse gas reduction program.

B. High-quality independent verification to support regulatory review

High-quality, independent verification is critical to support regulatory agency review of offset projects and emissions reductions or removals achieved by offset projects.[11] Verification should be conducted by an independent party that does not have any financial interest or other interest in an offset project, or a relationship with an offset project developer or other party involved in an offset project that could cause a conflict of interest, which would undermine the objectivity of the verifier.

Verification should be conducted for both the evaluation of offset project eligibility and review of project monitoring reports that quantify periodic project emissions reductions or removals. In addition to evaluation of project eligibility, project validation should include a review of the project's monitoring and verification plan that will be used to monitor, quantify, and verify project emissions reductions or removals.

Project validation should include an on-site, or equivalent, review to ensure that projects will be or have been implemented as claimed and in accordance with program requirements. Verification of project monitoring reports of project emissions reductions or removals should also involve on-site review, or an equivalent review if appropriate for a specific offset project category. For example, in certain instances remote sensing technology may be adequate to demonstrate that a project is being implemented as claimed. Determinations about the appropriateness of various alternatives to on-site review should be based on well accepted methodologies.

The quality of verification services provided is dependent on the quality of the verifiers that provide such services. As a result, one of the keys to high-quality verification is the implementation of a robust verifier accreditation process. The focus of this process is three-fold: 1) to assure that verifiers have proper qualifications to provide verification services for specific types of offset projects; 2) to ensure that verification services are provided competently and ethically; and 3) to ensure that verifiers do not have any conflicts of interest with regard to offset projects for which they are providing verification services.

A verifier accreditation process should involve an initial assessment of prospective verifiers, including verifier competence and organizational protocols used to evaluate potential conflicts of interest. Verifier accreditation should also

[11] Verification as used here refers to both evaluation of project eligibility (sometimes referred to as validation) and verification of periodic monitoring reports of greenhouse gas emissions reductions or removals achieved by a project (commonly referred to as verification).

include ongoing requirements for maintenance of accreditation status, such as conflict of interest disclosure, and periodic evaluation of verifier performance.

C. Program review and adjustment

Regular review and adjustment of offset program requirements will allow an offset program to respond to changes in science, technology, regulations, market conditions, or other relevant factors. For example, global warming potentials may change and improved monitoring protocols may become available. There may also be changes in regulations or market dynamics that could affect project additionality. Regular review and adjustment of program requirements will help ensure that offsets are of high quality. Program revisions should be performed in a transparent manner to ensure public confidence in the offset program.

The need to revise program requirements over time should be balanced with the need to provide project developers with sufficient regulatory certainty to enable project development. This balance can be achieved by tying project approval to crediting periods of an appropriate length. Under this approach, projects would apply for offset program approval using the most current program requirements. If a project is qualified for the award of offset compliance units, then it is eligible for the award of offset compliance units throughout the approved crediting period, pursuant to the program requirements in effect at the time of project approval. During the crediting period, the regulatory agency may revise offset program requirements to accommodate changes in science, regulations, market conditions, or other relevant factors. New program requirements would be applied to all new projects submitted for approval. However, new program requirements would not retroactively be applied to an already approved offset project during its original crediting period.

IV. Importance of Standardized Implementation Approach

The three regional cap-and-trade initiatives have either implemented or intend to implement the offset component of their program through a standardized approach. This approach, as outlined below, provides multiple benefits that improve both offset quality and program efficiency, compared to a project-by-project approach. These benefits include increased program transparency, a more objective project review process, reduced project transaction costs, reduced financial risk for project developers, a reduction in market uncertainty, and a more streamlined project regulatory review process.

A. Introduction

As used here, a standardized approach to offset implementation sets program requirements up-front. This requires the relevant regulatory agency to develop a single set of program requirements for each offset project type (i.e., standardized

for a category of projects). These requirements include mechanisms for evaluating project additionality, such as performance standards or benchmarks, and specified quantification, monitoring, reporting, and verification requirements. Standardized requirements need to address the five primary offset quality criteria discussed in Section II (real, additional, verifiable, permanent, and enforceable). For certain categories of offsets, standardized requirements may also address project permanence and project emissions leakage.

A standardized approach is distinct from a project-by-project approach. A project-by-project approach specifies certain process requirements for the evaluation of offset projects, but specific requirements are not set for project additionality, emissions quantification, monitoring, reporting, and verification. A project-by-project approach involves an offset project proponent proposing a customized set of evaluation criteria and other requirements for an individual offset project, including: (A) additionality evaluation process; and (B) quantification, monitoring, reporting, and verification criteria. The set of evaluation criteria and other project requirements proposed by the project proponent is then evaluated by the regulatory agency for sufficiency.

B. Examples of project-by-project and standardized approaches

Additionality

Project-by-project approach to evaluating additionality
The most notable program implementing the project-by-project approach is the Clean Development Mechanism (CDM). For example, the CDM specifies *process* requirements for evaluating project additionality, but does not specify additionality requirements for a category or type of project. The CDM evaluates project additionality through a process that typically involves the following:

- Identification of alternatives to the project
- Barriers analysis (market barriers, technology barriers, or financial barriers)
- Common practice analysis
- Investment analysis (project-by-project analysis, such as internal rate of return (IRR) or net present value (NPV)) with and without the projected revenue stream provided by the CDM offset compliance units; a determination is made as to whether the project, without offset revenue, is less financially attractive than other market options.

The overall goal is to provide reasonable assurance that the offset project would not have been implemented in the absence of the offset program. This process requires the creation by the project proponent of a project-specific baseline scenario of activities that are likely to occur in the absence of the offset project. A key component of this process is the evaluation of financial additionality – essentially an evaluation of the intent of the project developer, and whether the offset project would have been implemented absent the anticipated revenue

stream from the market of value of offset compliance units awarded for the project.

Project-by-project evaluation of financial additionality requires a project-specific counterfactual assessment, which is by definition problematic. In particular, the outcome of a project-by-project evaluation of financial additionality is highly dependent on the selection by the project proponent of a project-specific business-as-usual scenario and other assumptions for threshold investment decision criteria, such as a project's benchmark internal rate of return or net present value required by the project developer to move forward with project implementation. These investment decision thresholds can vary significantly among individual investors. The project-specific nature of individual investment decisions makes it difficult for the regulatory agency to sufficiently evaluate project proponent assumptions.

Standardized approach to evaluating additionality

In contrast to the project-by-project approach, a standardized approach specifies a set of additionality criteria for a category of project types. The program administrator designs and specifies these criteria to provide reasonable assurance that an offset project eligible under a project category would not have been implemented absent the anticipated revenue stream from the market of value of offset compliance units awarded for the project. This is done by setting specific additionality requirements that provide reasonable assurance that an individual offset project significantly exceeds standard market practice. In practice, this typically involves conducting a market evaluation to develop and specify benchmarks and performance standards for a category of projects[12] that are used as proxies to infer the financial additionality of individual projects[13]:

- A benchmark is a qualitative eligibility criterion for a category of projects that ensures that a project is unlikely to occur under standard market practice. A benchmark could include a technology or practice standard and could also be a qualitative market evaluation criterion; for example, a criterion that addresses the stacking of multiple project incentives based on typical project economics for a category of projects, considering other available non-carbon economic incentives.

- A performance standard is a quantitative eligibility criterion that establishes a metric for determining if categories of projects are unlikely to occur under

[12] It should be noted that this process is more straightforward than a project-by-project analysis of financial additionality, as it involves evaluating actual market practices and project economics in a defined market, based on projects that have already occurred and evidenced trends, rather than a counterfactual assessment of future alternative project-level investments. It also reduces transaction costs for project proponents, as they do not need to conduct such an analysis to support the development of project-specific evaluation assumptions.

[13] If a project exceeds standard market practice, it is assumed to be financially additional and is assumed to be implemented in response to the financial incentive provided through the receipt of offset compliance units that have a market value.

standard market practice. The criterion is usually established in relation to the performance level achieved through standard market practice for the category of activities eligible under a certain offset category. Projects that meet or surpass the standard qualify as additional. Examples of performance standards include:

- Emission rate
- Energy efficiency criteria
- Market penetration rate

Quantification

There are many ways to determine the amount of greenhouse gas emissions reduced or sequestered by a given project. A project-by-project approach allows project proponents to propose their own quantification methods. This has lead to the development of methodologies that are highly tailored to specific projects, and thus not easily applied to a broad number of projects in a single category. This has increased the administrative burden of protocol and project review.[14] This problem can be avoided if quantification methods are initially standardized. Standardized quantification methodologies specify the quantification protocols that must be applied to a particular project type (e.g., anaerobic digesters).

Permanence

When a project type bears some risk of having its emissions benefits reversed, then administrative measures are necessary to ensure the permanence of the offset project emissions reductions or removals that are the basis for the award of offset compliance units. The purpose of these measures is to ensure that if an offset compliance unit is issued for an emissions reduction or removal that could be reversed, safeguards are in place to ensure that the integrity of the cap-and-trade program emissions cap is maintained, even if a reversal occurs. There are a number of potential approaches for addressing permanence, including: buyer liability for reversals, seller liability for reversals, insurance requirements, creation of project buffer pools or offset compliance unit reserves, discounting of project emissions reductions or removals used as the basis for awarding offset compliance units, and conservation easements, among others. A number of these approaches may be used individually or together to address potential project reversals.

Under a project-by-project approach to permanence, offset project proponents could propose which permanence mechanisms to employ, leading to the potential for considerable variation from project to project. Requiring regulatory agencies to evaluate the adequacy of the specifics of each proposed methodology would be labor intensive. Allowing for the adoption of a multitude of

[14] As a result, the CDM, which is administered through a project-by-project approach, has begun to develop consolidated methodologies that can be used for a wide range of project types.

approaches to address permanence could also introduce considerable uncertainty into the marketplace, thereby reducing the liquidity of the offset market.

A standardized approach specifies requirements for addressing permanence for a category of offset projects. Standardizing the approach to addressing project permanence provides more certainty to project developers, maximizes offset market liquidity, and reduces the administrative burden of implementing the program.

Monitoring and Reporting

A project-by-project approach to monitoring and reporting allows a project proponent to propose a monitoring and reporting plan for a specific offset project. The regulatory agency must then review the monitoring and reporting plan for sufficiency. A standardized approach specifies requirements for project monitoring and reporting for a category of offset projects. Standardizing the process for monitoring and reporting simplifies the verification process, and makes it easier to detect inconsistencies and errors.

Verification

Under a project-by-project approach to verification, the project proponent and independent verifier specify the verification protocol for an individual offset project and the required contents of verification reports, including the appropriate level of assurance to be provided. The regulatory agency must then evaluate the sufficiency of the proposed verification process. A standardized approach specifies verification requirements for a category of offset projects, which may include the required contents of verification reports and the minimum level of assurance that must be provided.

Providing standardized requirements for independent verifiers outlining what is expected of them during project review and the implications of failing to adequately review project details will help ensure that verified projects meet established regulatory standards. Moreover, ensuring that all non-governmental verifiers are accredited to a single standard of professional expertise and requirements ensures that professionals are trained in greenhouse gas emissions and carbon sequestration accounting and offset project verification, and are conducting objective verification activities with accuracy and competence.

C. Value of standardization in ensuring offset quality

The primary value of a standardized approach is that it sets program criteria up-front, through a regulatory process that provides for full technical, market, and policy evaluation, including full public participation. This approach increases

program transparency and reduces the potential for the application of subjective project review criteria. However, a standardized approach can require more administrative resources during program design, but should reduce administrative resources required over the life of the program. It can also be difficult to establish standardized project evaluation criteria that are applicable across a wide range of regions and markets, which may require customizing standards for a respective region or regional market. Certain types of offset projects may not be amenable to a standardized approach if market data is lacking for development of additionality benchmarks and performance standards or quantification and monitoring protocols are not well developed.

The alternative is a case-law type approach, where program requirements evolve over time as project proponents submit proposed evaluation criteria and quantification, monitoring, and verification requirements for individual offset projects. This approach limits public participation by creating an administratively resource-intensive process that requires active ongoing participation from all affected stakeholders, some of which may lack the organizational capacity to fully participate in such a process. It also creates pressure to expedite technical and policy review in order to bring more offset projects to market.

If implemented properly, based on a robust market analysis, a standardized process avoids certain pitfalls of a project-by-project approach. In particular, the outcome of a project-by-project evaluation of financial additionality is highly dependent on the selection by the project proponent of project-specific business-as-usual scenarios and other assumptions for threshold investment decision criteria, such as a project's benchmark internal rate of return or net present value. These investment decision thresholds can vary significantly among individual investors. As a result, the evaluation criteria and key assumptions proposed by a project developer to evaluate project additionality must be validated by the relevant regulatory agency in order for the process to work as intended. To work properly, this could require significant additional market research, for which data might not be available, and would significantly slow the evaluation process. The end result is a potential for subjective evaluation results, an administrative overload that slows the project approval process, and pressure to expedite the regulatory agency review process without fully validating the project proponent's project evaluation criteria and other proposed project requirements.

A standardized process, in contrast, limits project eligibility to certain categories of projects for which sufficient market data is available and for which robust quantification, monitoring, and verification protocols already exist or can be readily developed. The market analysis is conducted up-front to develop standardized additionality criteria that can be applied to a group of like projects. If properly implemented, this ensures that the market analysis is objective and thorough.

A standardized process increases program transparency by allowing all parties to fully understand program requirements up-front. This reduces uncertainty for the project developer and decreases financial risk and market uncertainty. It also decreases project transaction costs by avoiding the need for project developers to develop their own complex project evaluation process and evaluation criteria. The complexity and potential subjectivity of the project review process is reduced, which should also reduce the time required to complete the regulatory review of a project.

D. Issues that need to be taken into account when using a standardized approach

A key offset quality issue that must be addressed when implementing a standardized approach is the need to update program requirements over time. For example, a standardized approach sets additionality requirements up-front, through regulation or other process, based on a market evaluation. However, while program requirements are specified up-front, program requirements should not be static. Since market conditions change over time, a program needs to build in a process for periodic market evaluation and the modification of program additionality requirements over time if warranted. Program administrators may also want to consider fine tuning standardized additionality criteria based on a project-specific evaluation of a subset of projects submitted for review under the program, in order to validate standardized program requirements.

Program administrators should also recognize that even with standardization of requirements, a number of project-specific assessments still need to be conducted. How these assessments are to be conducted may be specified in rule or protocol (i.e., standardized), but the project-specific evaluations still need to be conducted. An example is the determination of a project-specific emissions or sequestration baseline and monitoring and reporting of project performance and emissions reductions or removals.

For example, a standardized approach to evaluating additionality may employ default standards (referred to in pending U.S. federal legislation as “standardized activity baselines”), such as emissions performance standards, to determine project eligibility. When determining how many offset compliance units should be awarded for a project, it is important to consider not only such default values, but also project-specific baseline emissions (or carbon sequestration). Offset compliance units awarded should be calculated as the difference between project emissions reductions and either the standardized default emissions performance standard, or the project’s own emissions baseline, whichever produces a lower value.[15] If emissions reductions are credited directly against a standardized

[15] An example of the distinction between a baseline scenario that uses an emissions performance standard (a standardized activity baseline) and a project-specific emissions baseline is provided by the RGGI offset requirements for electricity-sector SF_6 offset projects. In RGGI, electricity transmission and distribution entities must meet an entity-wide SF_6 emissions performance

baseline scenario that is emissions-based, this could lead to over crediting of offset compliance units if the actual project emissions baseline differs from the default emissions baseline.

Applying default values for project emissions baselines and reporting period emissions reductions that do not involve project-specific evaluation could lead to the over-compensation of offset projects, and the award of offset compliance units for emissions reductions that are not real. An example is the potential for confusion of the concepts of a standardized baseline scenario and a project-specific emissions baseline.[16] A standardized baseline scenario evaluates a sector or subsector of similar activities, arriving at an average level of performance or establishing a typical common activity. It is in effect a scenario of what would have occurred in the absence of a project under common practice — in this case a standardized metric applicable to multiple, similar project activities. In contrast, a project emissions baseline should be project-specific, as it should represent the *lesser*[17] of actual emissions prior to implementation of a project or the emissions that result from application of a baseline scenario to the specific emissions sources within a project boundary. In practice, the baseline scenario must be applied to the specific greenhouse gas emissions sources and sinks addressed by an offset project in order to derive a project-specific emissions or sequestration baseline.

If offset compliance units are calculated directly against a standardized baseline scenario, the baseline scenario must be emissions based (e.g., tons of carbon sequestered per acre, or emissions per unit of output), which limits the types of activity metrics that could be used as an activity baseline. Furthermore, a qualifying project could potentially have actual baseline emissions above or below those that would be calculated through application of the baseline scenario to the specific emissions sources and sinks addressed by the project (e.g., a forestry management offset project, where actual carbon sequestered per acre prior to implementation of the project exceeds that which would be derived through application of the activity baseline to the number of acres of land within the project boundary). If emissions reductions are credited against the

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standard to qualify as eligible offset projects (the performance standard is an annual percentage emissions rate of total SF_6 used by the entity that is emitted per year). This emissions performance standard is one of the methods used to evaluate project additionality. However, while an emissions standard is used to evaluate additionality (the entity must have an emissions rate for its baseline year that is lower than the performance standard), actual baseline emissions as monitored for the entity are used as the basis against which emissions reductions are calculated and offset compliance units are awarded. This is because qualifying entities that meet the performance standard could have actual baseline year SF_6 emissions that are significantly lower than the performance standard. As a result, calculation of actual baseline emissions is necessary to ensure that a project is not over compensated with awarded offset compliance units.

[16] Activity baseline is a term used in current pending U.S. legislation, and is comparable to a baseline scenario.

[17] In the case of a sequestration offset project, the *greater* value of carbon sequestered would be used as the project baseline.

standardized baseline scenario, this would lead to over-crediting of offset compliance units for the project for the forestry management scenario above.

If emissions or sequestration baselines are not project-specific, the program could potentially issue offset compliance units for emissions reductions or removals that did not actually occur as a result of the project, due to the relative accuracy of the baseline scenario. This is because a standardized baseline scenario is a generalized proxy measure for evaluating project additionality for a category of projects and not necessarily a method for determining individual project baseline emissions. Avoiding this outcome requires quantification of baseline emissions or removals for all project emissions sources and sinks prior to the implementation of the project.