Determining the Additionality of Greenhouse Gas Reduction Projects

The Climate Trust

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Purpose

This document addresses the issue of additionality and outlines in detail the Climate Trust's process for determining the additionality of greenhouse gas reduction projects; other offset quality criteria and considerations are addressed in the Climate Trust's Quality Standards Documents.

Introduction

Greenhouse gas offsets stemming from greenhouse gas (GHG) reduction projects play an important role in combating global climate change. A greenhouse gas offset displaces, avoids or sequesters greenhouse gas emissions through the implementation of a specific project. The essential promise of a greenhouse gas offset is the achievement of a real and verifiable reduction in atmospheric GHG levels equal to reductions that would have been realized by onsite mitigation measures by emitters. Due to the way in which greenhouse gases impact the atmosphere, the location of an emissions reduction is immaterial to its impact. That is, that a reduction in a location other than the emissions source results in the same atmospheric impact as a reduction on site by a mitigating entity. Figure 1 illustrates this point graphically.

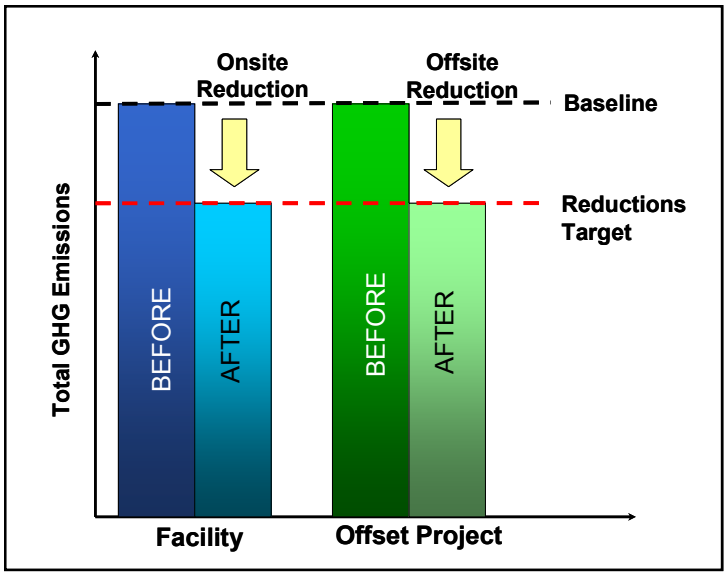


Figure 1. Equivalence of GHG Reduction Projects to Onsite Reductions

Opportunities for greenhouse gas emissions reductions exist in every sector of the global economy, from transportation to energy to agriculture. Many of these opportunities are not currently being taken advantage of because there is no economic incentive to do so. Greenhouse gas offset funding can provide the incentive for the deployment of new and innovative technologies and practices across all sectors of the economy.

Types of greenhouse gas offset projects include:

- Shifting to lower carbon energy sources, e.g. from coal to natural gas or biofuels;
- Renewable energy projects;
- Cogeneration of electricity from waste industrial heat;
- Methane capture and recovery from landfills and agricultural processes;
- Sulfur hexafluoride (SF6) capture and recovery;
- Afforestation and reforestation; and
- Increasing energy efficiency in buildings through projects such as upgrading heating, ventilating, and air conditioning (HVAC), window replacement, lighting retrofits and improved insulation.

Greenhouse gas offset projects can also produce a number of tangible environmental and economic benefits, also called co-benefits, which create value above and beyond the emissions reductions. GHG offset projects can reduce air pollution, improve habitat, watersheds, and water quality, reduce soil erosion, and preserve biodiversity. They can also create jobs, stimulate demand for clean energy products, save businesses and consumers money on energy, and enhance energy security by reducing oil imports. Finally, GHG offsets can drive funding into "un-capped" sectors, helping to stimulate broad technological innovation and development.

Because greenhouse gas offsets are intended to achieve the same level of reductions in emissions as an on site reduction, it is extremely important that offset funding is causing a reduction to occur that would otherwise not have. Put another way, a project developer must demonstrate that a greenhouse gas reduction project being used to mitigate emissions on behalf of another source is above and beyond the "business as usual" scenario; otherwise, there is no net reduction of GHG levels in the atmosphere. This concept is commonly known as "additionality." In order to be considered an offset, reductions projects must meet certain standards and criteria, which are intended to ensure that the actual levels of greenhouse gases in the atmosphere will be measurably reduced as a result of the action taken by the reduction project.

There are several means of determining whether or not a GHG reduction project is effective in reducing greenhouse gas levels. Critical metrics include: *realistic project baselines*, *additionality, and ongoing monitoring and verification*. These criteria are intended to ensure that the emissions reductions resulting from a GHG reduction project result in a real and verifiable reduction in atmospheric GHG levels.

1. **Additionality.** Additionality is an essential determinant of the effectiveness of an offset project and one of the most important factors in assessing project quality. Additionality

is a policy term by which an assessment is made regarding whether or not a project's emissions reductions are *in addition to* a business as usual scenario. The Climate Trust utilizes a project-by-project additionality assessment, in which a project proponent must demonstrate that it faces barriers to implementation that can be addressed through carbon funding. These barriers can be institutional, technological or financial (these tests are explained in greater detail below). Additionality is the metric by which a project demonstrates that it is resulting in a real, measurable reduction in atmospheric levels of greenhouse gases. A non-additional offset project does not measurably reduce the amount of greenhouse gases in the atmosphere.

2. **Project Baseline.** A baseline is a core component of the GHG reduction quantification process and must be established in order to quantify a project's reduction of greenhouse gas levels. The baseline is intended to demonstrate what greenhouse gas emission levels would have been in the absence of the GHG reduction project. Credible greenhouse gas emissions reductions can only be assessed if the baseline upon which the calculation is based is an accurate and realistic reflection of the business as usual emissions scenario.

3. **Monitoring and Verification.** Emissions reductions from GHG offset projects must be accurately quantified and verified. Each project must have a monitoring and verification (M&V) plan specific to that particular project that defines how, when and by whom the quantification and verification will be done. To ensure proper quantification and verification methodologies, the M&V Plans should be written with the help of experts familiar with the specifics of a project. All emissions reductions should be verified by an independent, third party verifier. There are established standards that can and should be used to develop and implement these M&V Plans, examples include: the World Resources Institute's Greenhouse Gas Protocol for Project Accounting and the International Standards Organization 14064 and 14065 Protocols.

4. **Permanence.** This is a term used to note that the offsets generated by biologically-based projects can be reversed. Permanence is a type of project risk. For example, one of the main criticisms leveled at forestry-based offset projects is that they have questionable permanence; if there is a wildfire, all of the carbon sequestered in the forest will be released into the atmosphere and the offset will be negated.

5. **Leakage.** Leakage is defined as increases or decreases in GHG emissions outside the project's emissions boundary that occur as a result of the project activity. For example, if a farm decides to cease farming operations to reforest its land, another area of land may be deforested to meet the demand for the farmer's crop. Monitoring & verification plans should provide necessary mechanisms to properly account for leakage over the life of an offset project.

6. **Ownership of Credits.** Emissions reductions generated by offset projects must have clear and defensible rights to ownership and may only be allocated, awarded or counted one time, at any given time, against the GHG emissions of a single entity. It is the

Climate Trust's view that the entity that controls or owns the GHG reduction measure is the owner of the offsets.

The Importance of Additionality

In any GHG reduction project, additionality is perhaps the most important determinant of a project's effectiveness in reducing atmospheric GHG levels. Moreover, additionality is the attribute that sets greenhouse gas offsets apart from other environmentally beneficial commodities, such as a Renewable Energy Certificates. Figure 2 illustrates the importance of additionality in affecting reductions in atmospheric GHG levels.

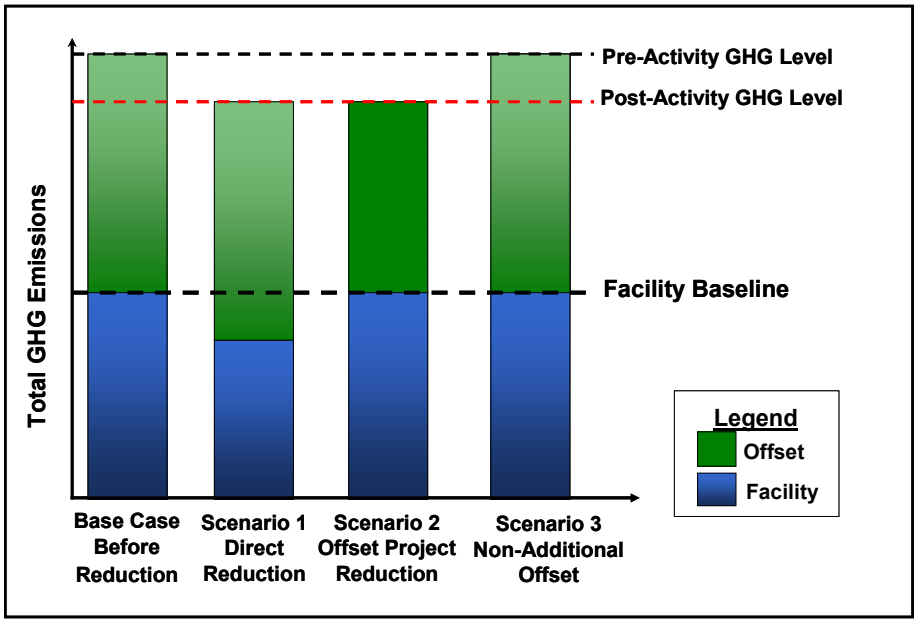


Figure 2. Importance of Additionality in Reducing GHG Emissions

The base case scenario in Figure 2 shows the levels of total GHG emissions resulting from a facility and a business as usual scenario combined (before offset project implementation); this is the scenario against which further reductions are measured. Scenario 1 illustrates the impact on atmospheric GHG levels resulting from onsite reductions, such as the installation of emissions reduction technology at a factory, conducted by an emitting facility. In this scenario, the total facility emissions are reduced below the facility baseline (the facility emission levels before mitigation activity) as a result of the onsite reduction project, in this example, emissions controls. The actual levels of GHGs in the atmosphere are reduced as a result of the direct reduction.

Scenario 2, offset project reduction, shows the impact of a greenhouse gas reduction project, or offset project on GHG emissions levels. In this scenario, the reductions result from action taken by an offset project in a location other than the facility. The facility's emissions have not changed, but the greenhouse gas reduction project's emissions are lower, resulting in a measurable reduction in overall

greenhouse gas emissions levels. The end result, reduced greenhouse gas emission levels, is the same in both Scenario1 and Scenario 2.

In Scenario 3, a non-additional offset project is deployed, but because the results of the project are not above and beyond the business as usual scenario, no real and quantifiable reductions in GHG levels occur.

Determining Additionality

There are two methods used to determine additionality, 1) project-specific assessments and 2) performance standard assessments. Project-specific additionality assessments are individual or case-by-case examinations of the unique circumstances of a proposed GHG project. In a project-specific additionality assessment a project's emission's levels are evaluated against a unique emissions baseline, which is the amount of GHGs that would be emitted in the absence of the project, i.e. the amount emitted, before the project is implemented. In a project-specific additionality assessment, the emissions baseline is only valid for that particular project.

The performance standard approach to determining additionality involves identifying and establishing standards of efficiency for a sector or a particular technology. For example, if the industry standard for washing machines is1.6 kilowatt hours per cycle, any washing machines that perform at least 20% more efficiently than the industry standard would be considered above and beyond the business as usual scenario and deemed to be additional.

Each approach to project evaluation has its respective strengths and weaknesses. Performance standard additionality assessments can create certainty in the market and streamline the assessment process. However, performance standards can also potentially allow some projects that are not actually additional into the offset market, thereby compromising the environmental benefits of a GHG reduction program. Project-specific assessments allow for greater accuracy and reliability in assuring real reductions in GHG levels, but this approach can be time and labor intensive and reduce the flow of projects into the market. The Climate Trust currently assesses projects on a project-specific basis in order to attain the greatest assurance that all projects result in a real and verifiable reduction in GHG emissions.

The Climate Trust's Additionality Determination Matrix illustrates the process by which a project's additionality is assessed. Because each project is different, the Climate Trust utilizes a project-specific additionality assessment, in which a project proponent must demonstrate that the project faces barriers to implementation that can be addressed through offset funding. These metrics are commonly called barriers tests, and are intended to identify whether or not carbon reduction funding is a significant contributor to a project's implementation and success. Presented below are the barriers tests the Climate Trust uses to determine a GHG reduction project's additionality.

Additionality Tests

The Climate Trust uses three common tests to determine a project's additionality: 1) Regulatory Surplus Test, 2) Barriers Tests, and 3) Common Practice Test. These tests are based on the Kyoto Protocol's Clean

Development Mechanism methodology, as well as the World Resource Institute's GHG Protocol for Project Accounting. These tests are illustrated in the Additionality Determination Matrix and are explained in greater detail below.

It is important to note that there is a certain degree of subjectivity in the assessment of additionality. These tests are based on emerging norms and best practices in the burgeoning carbon market in the United States and internationally. These principles and practices are intended to assure that GHG offset projects deliver on their basic promise- to mitigate GHG emissions as effectively as on-site or direct GHG reductions.

Test 1: Regulatory Surplus. The Regulatory Surplus Test ensures that the project that is occurring is not mandated by any existing law, policy, statute or other regulatory framework. If it is, then it is assumed that the project is being developed to comply with the law or regulation and thus, cannot be considered additional to the business as usual scenario.

> **Key Question:** Is this project mandated by any existing law, policy or statute?

Test 2: Implementation Barriers. The implementation barriers tests are at the heart of the additionality determination process. There are three main implementation barriers tests: 1) Financial, 2) Technological, and 3) Institutional. A project must meet at least one, though preferably more than one, of the following barriers tests in order to be considered additional.

Test 2(a): Financial Barriers. The financial barriers test addresses how carbon funding impacts the project in question. Financial barriers tests are generally considered to be one of the more rigorous and stringent tests of additionality. There are two main types of financial barriers a project can face: capital constraint and internal rate of return. The Capital Constraint Test addresses whether a project would have been undertaken without carbon funding. Internal rate of return indicates whether or not a project would have met established targets for internal rates of return without carbon funding. These are not the only acceptable tests of financial barriers, but are the most commonly used.

> **Key Question(s):** Does this project face capital constraints that carbon funding can address?
> OR
> Will carbon funding bring the internal rate of return to a level that enables the implementation of the project?

Test 2(b): Technological Barriers. There are several categories of assessment that could fall under this test. If the primary reason for implementing a technology is its GHG reduction benefits, that project is generally considered to be additional. For example, if a more energy efficient, though more expensive to manufacture, model of a hot water heater is available and the additional cost is barring its entry into the market, carbon funding can help bridge that gap and bring a technology to market that otherwise would not have been. In this case, the GHG reductions resulting from the deployment of the new technology are clearly above and beyond business as usual.

> **Key Question:** Is the primary benefit or purpose of the technology in question its GHG reduction capabilities?

Test 2(c): Institutional Barriers. Institutional barriers can be organizational, social or cultural. If a GHG reduction project fall outside of the normal purview of a company or organization and there is

reluctance to implement a project that is not within that purview or to capitalize a project with uncertain returns, carbon funding can often assist in overcoming that barrier.

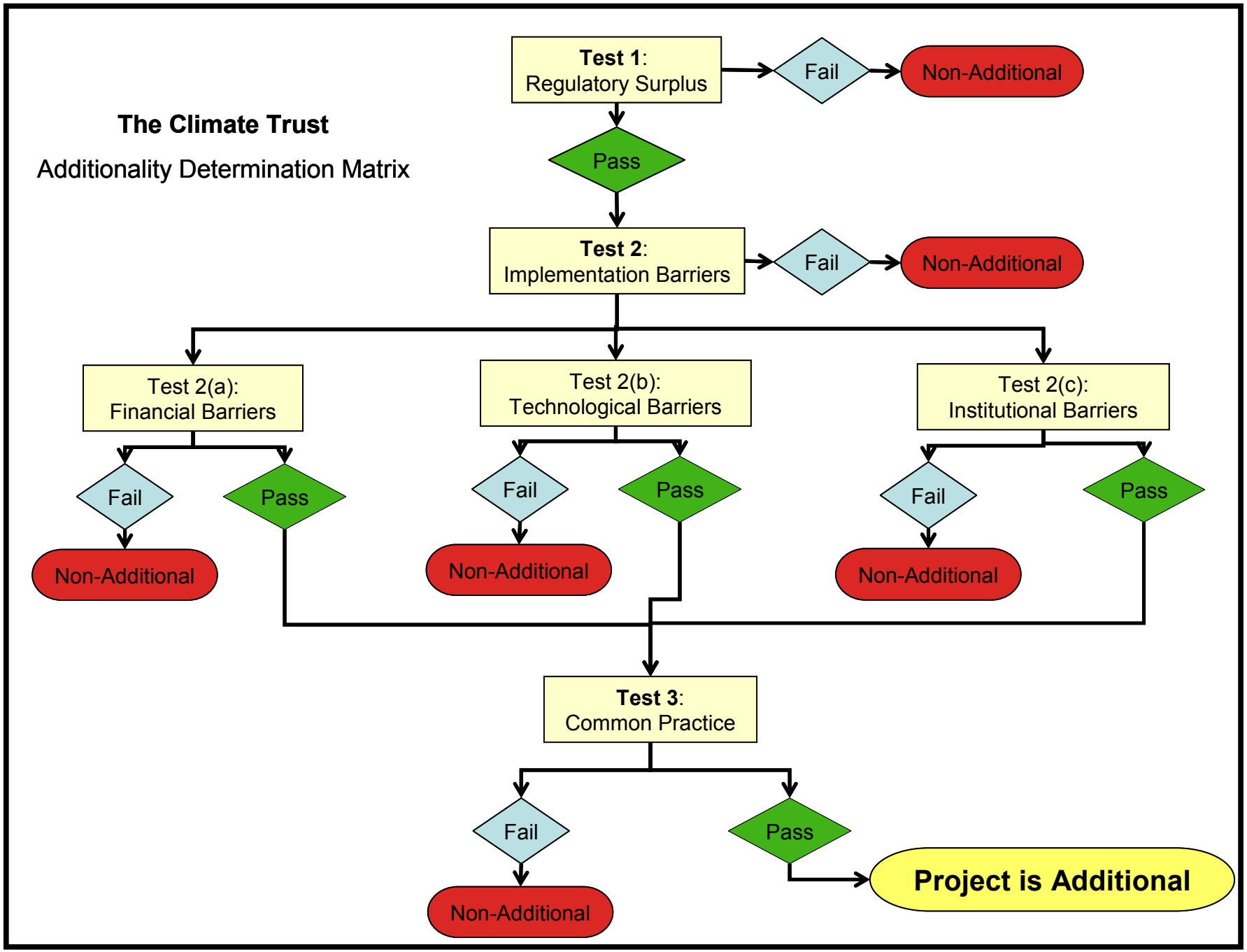
> **Key Question:** Does this project face significant organizational, cultural or social barriers that carbon funding will help overcome?

Test 3: Common Practice. This test is intended to determine whether or not a project is truly above and beyond "business as usual". If a practice is widely employed in a field, it is not considered additional.

> **Key Question:** Is the project, technology or practice commonly employed in the field or industry?

Conclusion

Additionality is one of the most important determinants of a project's effectiveness in achieving real reductions in greenhouse gas levels. If a project developer cannot demonstrate that a GHG offset project is clearly above and beyond the business as usual scenario, that project, if implemented, is of dubious benefit to the environment. Strict criteria for additionality and other measures of GHG reduction project quality ensure real environmental benefits and protect the integrity of the GHG offset market. Assuring measurable reductions in GHG levels resulting from GHG offset projects is crucial to the continued participation of the greenhouse gas offset market in effectively combating global climate change.


The Climate Trust
Additionality Determination Matrix
Test 1: Regulatory Surplus
Fail
Non-Additional
Pass
Test 2: Implementation Barriers
Fail
Non-Additional
Test 2(a): Financial Barriers
Test 2(b): Technological Barriers
Test 2(c): Institutional Barriers
Fail
Pass
Non-Additional
Fail
Pass
Non-Additional
Fail
Pass
Non-Additional
Test 3: Common Practice
Fail
Pass
Non-Additional
Project is Additional