

# MAINTAINING CARBON MARKET INTEGRITY

Why Renewable Energy Certificates  
Are Not Offsets

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# INTRODUCTION AND OVERVIEW

## Definition of an offset

An offset represents the reduction, removal, or avoidance of GHG emissions that is used to compensate for GHG emissions that occur elsewhere.

\*One offset credit represents one metric ton of carbon dioxide equivalent

Over the past decade, a variety of government and non-governmental entities have sought to harness the power of markets to promote investment in activities that mitigate climate change. Many of these markets are based on the creation of tradable commodities derived from environmentally beneficial or preferable activities such as greenhouse gas (GHG) emission reductions or renewable electricity generation. Such commodities include GHG offset credits (offsets), and Renewable Energy Certificates (RECs)<sup>1</sup>, among others.<sup>2</sup> How these environmental commodities are defined and treated has important consequences for the environmental integrity and effectiveness of climate change regulatory policies.

This brief demonstrates that RECs sold in either voluntary or mandatory environmental markets are not equivalent to GHG emission offsets. The first section of this brief defines and provides an overview of GHG emission offsets and RECs. The second section describes the relationship between renewable energy and emissions reported by the electric power industry. The third section presents the problems created by treating RECs as offsets. The final section outlines OQI's recommendations for the definition of a REC and the interaction between the REC and offset markets.

## Offsets and RECs Defined

### GHG Offsets Defined

A GHG offset is a reduction, removal, or avoidance of GHG emissions that is used to compensate for GHG emissions that occur elsewhere. Offsets can be traded in the form of credits that typically represent one metric ton of carbon dioxide equivalent emission reductions (or enhanced carbon sequestration). In voluntary markets, GHG offsets are used by corporations and individuals interested in reducing their net GHG emissions or carbon footprint. In a mandatory emissions cap-and-trade system, offsets come from emissions outside of the boundary of the cap, and may be used in lieu of an emissions reduction that would otherwise have been made by an emitter within the boundaries of the emissions cap. In other words, the purchasing firm is allowed to use offset credits to meet its compliance obligation as though the firm had made the reduction itself, or had purchased a GHG allowance.

<sup>1</sup> Also referred to as Renewable Energy Credits, Green Tags, and Tradable Renewable Certificates.

<sup>2</sup> A third type of environmental commodity relevant to this discussion is the energy efficiency certificate (EEC), also referred to as a "White Tag." These certificates are intended to represent one megawatt-hour of energy efficiency savings, and they provide incentives for energy efficiency investments. EECs have similar drawbacks to RECs regarding their use as carbon offsets. A detailed discussion of EECs is beyond the scope of this brief.

Credible offsets must meet a number of criteria to ensure they are functionally equivalent to a purchaser's own emission reductions. This paper focuses on two of the most critical criteria and their relationship to RECs. First, offset reductions must be clearly owned and not double-counted. Second, emission reductions must be "in addition to" emission reductions that would have occurred without the incentive provided by the market for offset credits (commonly referred to as "additionality").

### RECs Defined

A REC is a certificate that is issued when one megawatt-hour of electricity is generated and delivered to the grid from a qualifying renewable energy source, such as wind, solar, or biomass.<sup>3</sup> Once a REC is issued, renewable energy generators have two commodities to sell: wholesale electricity and RECs.

RECs were originally envisioned as a compliance tracking tool for a renewable energy portfolio standard (RPS) proposed during the U.S. electricity restructuring debates of the mid-1990s.<sup>4</sup> Although a federal RPS was not passed at that time, RECs were subsequently adapted for use in voluntary green power markets.<sup>5</sup> Today RECs are used in the voluntary markets by individuals and corporations interested in purchasing green power and in compliance markets by utilities operating in states with an RPS.

While RECs fundamentally serve as proof that one megawatt-hour of electricity was generated and delivered to the grid from a qualifying renewable source, some parties began extending the definition of a REC to include a bundle of ambiguously defined "environmental attributes" or "benefits" that were assumed to be associated with the generation of qualifying renewable electricity. The scope of environmental claims associated with RECs has grown over time in response to increasing interest in their assumed climate change benefits. These extended definitions imply or explicitly claim that a REC may serve the same function as a GHG offset since buyers of RECs believe they have reduced GHG emissions because they own the "environmental attributes" associated with renewable energy. The notion that a REC represents or includes "environmental attributes" is considered standard in both voluntary and regulatory markets.

### Definition of a REC

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<sup>3</sup> The precise qualifying sources differ from program to program.

<sup>4</sup> Renewable energy portfolio standards usually establish a mandated percentage of a state's total energy generation to be sourced from qualified energy resources such as wind, solar, or biomass. For example, the state of California mandates that 20 percent of its electricity be sourced from qualified renewable resources by 2010.

<sup>5</sup> Gillenwater, M., *Redefining RECs (Part 1): Untangling Attributes and Offsets*, *Energy Policy*, Volume 36, Issue 6, June 2008, Pages 2109-2119.

## The Issue of Double-Counting

In the United States, direct GHG emissions are reported by each power plant where the emissions occur. The expectation is that these power plants will eventually fall under a GHG emissions cap and be required to obtain GHG allowances for each metric ton they emit.

Emission reductions from any activity associated with electricity use or generation, such as energy efficiency or renewable energy, actually occur at these fossil fuel-fired power plants, which will be covered sources under a cap-and-trade program. In their reports, the effects of these activities will show up as reduced emissions from fossil fuel-fired plants and reduced allowance requirements. If a renewable generator gets credit for indirect reductions as well, then emissions reductions would be double-counted. It is therefore crucial to define RECs in anticipation of a future cap-and-trade program with an eye towards avoiding the possibility of double-counting.

However, government regulators have yet to establish a consistent regulatory framework that clearly defines environmental attributes, substantiates and quantifies them, and assigns ownership to specific attributes where conflicting claims potentially exist. For example, a recent definition of a REC by the California Public Utilities Commission (CPUC) illustrates why attempting to tie environmental attributes to RECs is problematic. Under the CPUC's definition:

*A REC includes all renewable and environmental attributes associated with the production of electricity from the eligible renewable energy resource, including any avoided emissions of pollutants to the air, soil or water; any avoided emissions of [GHGs]; and the reporting rights to these avoided emissions...*<sup>6,7</sup>

The concern with this and similar definitions is that they are an assertion of claims that are not actually substantiated by the application of rules or regulations that indicate how such claims should be quantified, verified, guaranteed, or exclusively assigned to the purchaser of a REC.

Furthermore, this lack of oversight and regulation has resulted in a patchwork of sometimes contradictory definitions between state and regional, as well as voluntary and mandatory, REC programs. Even among government-run mandatory markets, there is often a lack of clarity and consistency. For instance, there are currently five separate regional REC tracking systems<sup>8</sup> in the United States that are used to support RPS compliance obligations (as well as other purposes). Each of these systems, as well as the 29 states with an RPS, has different, and sometimes conflicting, REC definitions.<sup>9</sup>

## The Problem with Treating RECs as GHG Offsets

The difference between RECs and offsets is that credible offset programs establish valid claims to emission reductions by meeting both additionality and ownership conditions. This section addresses these two issues in detail.

6 Decision 08-08-028, California Public Utilities Commission, p. 35.

7 In adopting this definition the CPUC was concerned with attempts to “unbundle” and separately sell “environmental attributes” associated with RECs used for California RPS compliance. The concern was that any net reductions in power sector GHG emissions brought about by a California RPS (and paid for by California ratepayers) could be negated if those reductions were sold separately as “offsets” (thereby allowing buyers’ emissions to increase). The unfortunate effect of this approach is that it perpetuates the notion that ambiguously defined “environmental attributes” are inherent in a REC rather than a REC being simply a compliance tracking instrument. Much of the confusion that is the topic of this paper could be avoided if the concept of “environmental attributes” were dropped from the definition of a REC. The CPUC’s concerns could have been addressed through a simple provision banning the sale of emission offsets by renewable generators who sell RECs into the California RPS market.

8 These include: Electric Reliability Council of Texas (ERCOT), New England Power Pool/ Generation Information System (NEPOOL-GIS), PJM Generation Attribute Tracking System (PJM GATS), Western Renewable Energy Generation Information System (WREGIS), and Midwest Renewable Energy Tracking System (M-RETS).

9 Gillenwater, M., *Redefining RECs (Part1): Untangling Attributes and Offsets*, *Energy Policy*, Volume 36, Issue 6, June 2008, Pages 2109-2119.

## Issue #1: Double-Counting and Ownership of Emission Reductions

Renewable energy projects can potentially lead to GHG reductions in two ways:

- A renewable energy facility is built instead of a new or expanded fossil-based power plant, thereby avoiding future GHG emissions, or
- A renewable energy facility is built that reduces the output from existing fossil-fueled power plants operating on the grid, thereby reducing emissions from those facilities.

In both cases, the emission reductions occur not at the renewable energy project site, but rather at an emission source elsewhere on the grid. For this reason, renewable energy projects are said to result in “indirect” emission reductions because the reductions take place at sources owned or controlled by other entities. Conversely, projects such as fuel switching (e.g., coal to natural gas) at an industrial facility or methane capture at a landfill, result in “direct” emission reductions because those reductions occur at sources owned by the project developer.

In order to avoid double-counting of emission reductions, the seller of emission reductions must have a clear and uncontested claim to them, established by contractual assignment and/or government recognition of ownership. In the case of indirect emission reductions such as those that might result from a grid-connected renewable energy project, clear ownership is generally difficult or impossible to achieve without government intervention.

Furthermore, the transfer of ownership for a reduction (e.g., in the form of an offset credit) must be unambiguous and documented. Clear transfer of ownership cannot take place where the reduction itself is not clearly defined, quantified, and documented, as is the case with the environmental benefits attributed to RECs. In the United States, it is not currently possible for a renewable generator selling RECs to assure that emission reductions are being conveyed with RECs and that emission reductions are not being counted or claimed by other grid-connected entities.

However, even if ownership and double-counting issues could be resolved, there is a further concern over additionality of emissions reductions that must also be addressed.

## Issue #2: Additionality

Because the purchasers of offsets use them in lieu of making their own emission reductions, it is highly important that offsets represent emission reductions that would not have otherwise occurred. The economic incentives afforded by offset credit value should be reasonably expected to have enabled the implementation of an offset project. All high quality offset programs require rigorous demonstrations of additionality.<sup>10</sup>

### Definition of Additionality

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.

<sup>10</sup> World Wildlife Fund (WWF), “Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards”, WWF Germany, March 2008.

**The difficulty of RECs to satisfy either the ownership or additionality criteria of credible offsets means their inclusion could potentially undermine the integrity of the offset market.**

REC programs have eligibility requirements that either overlook or insufficiently address additionality; that is, criteria that credibly assess whether a renewable energy project would have happened anyway. While some of these projects may in fact be additional, others would likely have been implemented even in the absence of REC markets because of the existence of government incentives, such as the Production Tax Credit. Since additionality is an essential characteristic of a credible GHG offset, if the additionality of a REC cannot be determined, the failure of a REC to meet the additionality criteria alone makes it inappropriate for use as an offset. If RECs are treated as equivalent to GHG offsets, this incorrectly assumes that the incentives provided by REC markets caused the installation of all renewable energy generation capacity participating in those markets.<sup>11</sup>

In summary, the notion that RECs convey a broad and general claim to environmental attributes or benefits—including GHG emissions reductions—has the potential to create confusion in the GHG offset markets at a time when clarity and credibility are of paramount importance. The difficulty of RECs to satisfy either the ownership or additionality criteria of credible offsets means their inclusion could potentially undermine the integrity of the offset market.

## Recommendations

Environmental markets are powerful instruments for addressing many environmental problems. For this power to be harnessed effectively, the commodities traded in these markets must be credibly and unambiguously defined. In light of the growing REC market and the evolving climate change regulatory landscape in North America, OQI believes it is very important to establish clear and defensible precedent regarding the definition and treatment of RECs and their relationship to GHG emissions. This will avoid confusion and improper accounting practices under future regulatory regimes.

OQI is a strong supporter of renewable energy, and believes that it has a critical role to play in addressing global climate change. Governments should enact stronger policies to spur additional investment in renewable energy. There are a variety of policy mechanisms available to do this—for example renewable energy portfolio standards (RPS), tax credits, and feed-in tariffs—that do not undermine the integrity of GHG cap-and-trade and emission offset markets.

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<sup>11</sup> According to National Renewable Energy Laboratory (NREL) data, from 2000-2005, approximately 1,400 MW out of the 4,000 MW (35%) of renewable capacity that was installed in non-RPS (i.e., voluntary) markets was built to serve the general grid, not simply “green power” markets.

OQI believes that the definition of a REC should be limited strictly to its representation that a megawatt-hour of renewable energy was delivered to the grid. This limited definition would allow RECs to continue to play a central role in the achievement of U.S. renewable energy goals without compromising the environmental integrity of GHG offset markets, as well as other environmental commodity markets.

In the interest of the renewable energy markets and to ensure that claims being made in these markets are credible and substantiated, OQI recommends the following:

- RECs should not be treated as equivalent to GHG offsets.
- The definition of a REC should be clearly established and consistently applied. A suggested definition would be the following: A Renewable Energy Certificate (REC) is the unique and exclusive proof that one megawatt-hour of electricity has been generated from a qualified renewable resource connected to the grid.
- It is inappropriate to treat RECs as an environmental commodity that conveys ownership of indirect “emission attributes” such as GHG emission reductions. OQI strongly recommends against the inclusion of indirect or derived “environmental attributes” or “benefits” in any definition of a REC, including those used in the various certificate tracking systems (e.g., Generation Attribute Tracking System [GATS] and Western Renewable Energy Generation Information System [WREGIS]).
- Purchasers of RECs should not make GHG emission reduction claims associated with the retirement of RECs.

# 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, Climate Action Reserve, Environmental Resources Trust–Winrock International, 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 whose mission is to promote climate change solutions by providing high-quality greenhouse gas (GHG) offset projects and advancing sound offset policy. The Climate Trust fulfills its mission by providing carbon finance for innovative, high quality offset projects; by providing consulting services and customized large-scale offset programs for businesses, governments, and utilities; and by using its practical experience to advance sound climate policy and market development. As a pioneering offset provider in both the compliance and voluntary offset markets in the United States, The Climate Trust offers a unique perspective to policymakers at the state, regional, and national levels. The Climate Trust spearheaded 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 45 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.



### Climate Action Reserve

The Climate Action Reserve is a U.S. private nonprofit organization addressing climate change and bringing together participants from the government, environment, and business sectors. It works to ensure environmental benefit, integrity, and transparency in greenhouse gas (GHG) emissions accounting and reduction and progressive movement in GHG emissions policy nationally and in the western United States. The Climate Action Reserve is parent to three programs: the California Climate Action Registry, Climate Action Reserve, and Center for Climate Action. As the subsequent organization of the California Climate Action Registry, the Climate Action Reserve continues building on the California Registry's reputation as a respected and internationally recognized leader in climate change issues.



### Environmental Resources Trust – Winrock International

The Environmental Resources Trust (ERT) and the American Carbon Registry, business units of the nonprofit Winrock International, are leaders in the U.S. voluntary and pre-compliance



greenhouse gas (GHG) emissions trading markets. ERT, and its American Carbon Registry, joined Winrock in 2007, expanding its blended engineering, carbon finance, modeling and measurement, and science-based policy skills and expertise across the agriculture, forest, electric power, and clean energy sectors. The American Carbon Registry is the first private voluntary GHG registry in the U.S. and continues to be the largest and one of the most respected registries in the voluntary and pre-compliance markets. A host of Fortune 500 companies, project developers, financial institutions, and nonprofit organizations trust ERT and the American Carbon Registry to provide the GHG measurement and accounting, methodology development and validation, project registration, and offset issuance, trading, and retirement expertise they need to be successful in the U.S. carbon market.

### Greenhouse Gas Management Institute

The Greenhouse Gas Management Institute, a registered nonprofit organization, trains, certifies, and networks a global community of experts that account, audit and manage GHG



emissions based on world-class training and professional standards. The Institute's membership includes individuals and organizations, from beginners to certified professionals, working on all aspects of climate change. Founded in 2007 through a partnership between ClimateCHECK and the GHG Expert Network, the Institute works with the World Resources Institute, the World Bank, the United Nations, the Carbon Disclosure Project, Point Carbon, Harvard University Extension School and our exceptional faculty on training and professional development programs utilizing innovative internet tools to ensure that professionals will be available to support future market mechanisms and other policy responses to climate change. For more information, go to [www.ghginstitute.org](http://www.ghginstitute.org)

### 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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