



# Overview of International Voluntary Renewable Electricity Procurement and Public Claims

Version 1.0

## Table of Contents

I. ACKNOWLEDGEMENTS .....	2
II. INTRODUCTION .....	3
III. HOW TO USE THIS GUIDE .....	5
IV. DEFINING RENEWABLE ELECTRICITY AND GREEN POWER.....	6
V. RENEWABLE ELECTRICITY MARKETS.....	6
VI. RENEWABLE ELECTRICITY PRODUCT TYPES.....	7
Renewable Energy Certificates (RECs).....	8
Guarantees of Origin (GOs) .....	9
Power Purchase Agreements (PPAs).....	9
Utility Green Pricing Programs and Competitive Electricity .....	10
Onsite Renewable Electricity Generation.....	10
Donation Models .....	11
Carbon Offsets Derived from Renewable Energy Generation Projects.....	11
Investments .....	12
Hosting/Leasing.....	13
VII. DETAILS ON KEY CRITERIA OF RENEWABLE ELECTRICITY PRODUCTS.....	13
Ownership .....	14
Double Counting .....	14
Interaction with Compliance Markets.....	15
Interaction with Government Incentives.....	16
Tracking .....	16
Proximity of Generation.....	17
Generation Date .....	18
Newness of Generation Facility.....	19
Resource Type.....	19
VIII. CERTIFICATION PROGRAMS.....	20
Facility certification.....	20
Transaction certification .....	20
Usage certification.....	21
IX. DETAILS ON BASIC PRINCIPLES FOR PUBLIC CLAIMS .....	22
Defining Claim Boundary.....	22

Geographic Applicability.....	22
Usage verification .....	23
Vintage Matching.....	23
Accuracy and Specificity.....	23
Government Guidance .....	24
GHG Accounting .....	24
X. CONCLUSION .....	24

## I. ACKNOWLEDGEMENTS

This paper is the product of help from many friends of Center for Resource Solutions (CRS). There were numerous conversations with experts and market players in many global locales. Ultimately, we hope that the information provided in this document helps facilitates the conversations necessary to create new renewable energy markets in many more countries and gives organizations looking to purchase renewable energy a reference point for responsible claims. It never ceases to amaze our organization how people in this industry are willing to lend a helping hand in pursuit of a worthwhile goal.

A thank you to our advisory committee who contributed very early on in this process and encouraged us to pursue this paper: Amy Boyce, Brad Simcox, Winston Chen, Jason Kindt, Bruce Klafter, and Marty Sedler.

Thank you to our industry colleagues Ed Holt, Matt Clouse and Bryn Baker.

Thanks to Andres Schwarz, Kemal Demirkol, and Boris Lopicich.

Thank your to many of our European friends and contacts: Jared Braslawsky, Steven Vanholme, Riku Eskelinen, Mieke Lange, Susanne Fratzcher, Costanza Boggiano Pico, Preben Munch, Markus Klimescheffskij, and Pedro Faria.

A big thank you to our volunteers and interns who provided copious research: Franziska Sinner, Jennifer Barnette, Jean-Baptist Gallo, Daryl Capanzana, Michael Perry and Allyson Johnson. Thank you to Jennifer Martin for your knowledge and patience. Thank you to Jeff Swenerton for your editor's eye.

Finally, thank you to all the staff at CRS who do heavy lifting daily from our offices in San Francisco.

## II. INTRODUCTION

Over the last few years, organizations of all sizes have been increasingly using renewable electricity<sup>1</sup> for their operations and asking companies within their supply chain to reduce greenhouse gas (GHG) emissions associated with electricity use. By using renewable electricity, organizations can realize many benefits, including energy security, price stability, marketing benefits, improved stakeholder relations and reduced environmental footprints. In the U.S. and Canada, purchasing and using renewable electricity has been made relatively straightforward through the development of a voluntary renewable electricity market. Over the past two decades, tremendous public and private resources have been invested to create infrastructure and mechanisms to allow renewable energy generators to have access to markets, largely as a means to allow demand to drive growth in the industry. The effectiveness of these investments is reflected in the now low transaction costs, and ease, associated with renewable energy purchasing. U.S. and Canadian-based organizations have a multitude of purchasing options including developing onsite renewable electricity generation, buying renewable electricity from an electricity service provider, signing a power purchase agreement (PPA) with a renewable electricity generator, or, most commonly, purchasing standalone renewable electricity certificates (RECs). There exists clear and consistent guidance<sup>2</sup> from industry, non-governmental organizations (NGOs), and government agencies on how to demonstrate this use of renewable electricity, and there are well-accepted third-party standards and certification programs that oversee the credibility of voluntary renewable electricity purchasing in the U.S.

Entities headquartered in the U.S. and Canada with activities in other countries and organizations located throughout the world are also interested in purchasing and using renewable electricity outside of North America. However, electricity markets, access to renewable electricity generation, and the instruments that track ownership of renewable electricity attributes can vary significantly by country or within countries. The clarity that exists in the U.S. and Canadian market is not consistently available in other electricity markets. Organizations find many challenges, including the availability of voluntary renewable electricity procurement options, diverse regulatory environments, lack of consumer protection programs, and legal systems that can obfuscate clear, exclusive environmental and ownership claims.

This document provides an overview of best practices and options for purchasing and using renewable electricity globally, as well as guidance for clear and accurate communication of renewable electricity claims within the context of national or regional renewable electricity markets. Guidance issued in the document is based on the historical best practices of renewable electricity purchasing and usage in the U.S. and Canada, along with input from international stakeholders representing a variety of perspectives and markets. While it will not be able to address all country- or region-specific issues, it is our

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<sup>1</sup> Renewable energy throughout this paper refers to renewable electricity, RECs, GOs, or other commodities representing renewable electricity

<sup>2</sup> See Guide to Purchasing Green Power:

[http://www.epa.gov/greenpower/documents/purchasing\\_guide\\_for\\_web.pdf](http://www.epa.gov/greenpower/documents/purchasing_guide_for_web.pdf)

hope that this document will serve as a guide to organizations of all types looking to make credible renewable electricity commitments and those organizations who might have a role in helping to develop local renewable electricity markets in a manner that is consistent with existing best practices.

### III. HOW TO USE THIS GUIDE

This document is intended to help purchasers of renewable energy identify and evaluate important criteria when voluntarily sourcing renewable electricity and green power products in a variety of global locales. The document may also be helpful to those entities looking to create or market green power products to corporate purchasers or other certification programs looking to address the primary concerns of purchasers. Below is a brief overview of what to expect from each section.

Section IV and V provide this paper's definition of renewable electricity and a brief overview of renewable electricity markets.

Section VI describes the renewable electricity product types that are currently available in different markets globally. This section helps to characterize the options that may be available and best practice claims are provided as well demonstrating how each product type or purchase options can result in different claims language.

Section VII highlights key criteria used in renewable energy products and provides reasoning for why these criteria are important in evaluating procurement options.

Section VIII highlights the role of certification in renewable electricity products. The purpose and benefits of facility, transactional, and claims certification are reviewed and a list of known certifications by country are provided.

Section IX provides an evaluation of the criteria and best practice principles used in making responsible public claims about renewable energy usage.

Section X offers a conclusion of the major themes of this paper and recaps the need for continuing application of best practice principles.

## IV. DEFINING RENEWABLE ELECTRICITY AND GREEN POWER

Renewable electricity and green power can mean different things to different people. Organizations such as World Resources Institute (Global), World Wildlife Federation (Global), Center for Resource Solutions (CRS) (US), U.S. Environmental Protection Agency (EPA) (US), U.S. Green Building Council (Global), Oko Institut (Germany), Renove (Brazil), India Renewable Energy Development Agency (IREDA) (India), and many others around the world all maintain generally consistent definitions of renewable electricity with some slight variations between them. While many consider a broad definition based on a technical definition of a renewable energy resource, others look more narrowly within that definition to determine eligibility for their individual programs or products based on specific sustainability and quality screens.

For the purpose of the document, we will use the term renewable electricity as defined by the International Renewable Energy Agency (IRENA): *Energy produced from renewable sources in a sustainable manner that includes: bioenergy, geothermal energy, hydropower, ocean energy (including inter alia tidal, wave and ocean thermal energy), solar energy and wind energy*<sup>3</sup>. This definition includes resources that are regenerated on a timescale that can be roughly consistent with human use, excludes fossil fuels and nuclear, and is generally consistent with the definition provided through the widely accepted Green-e Energy National Standard in the United States<sup>4</sup>. In addition, this paper assumes that facilities from which organizations are purchasing or using renewable energy are connected to a larger renewable electricity grid and market and grid, and are not considered off-grid.

## V. RENEWABLE ELECTRICITY MARKETS

Using renewable energy for a home or business is not a new concept. Forms of renewable energy have been available throughout history, with windmills being used for milling food and pumping water for over a thousand years. It wasn't until the late 19<sup>th</sup> century that renewable technologies were used to create electricity. Historically, however, the cost of renewable electricity generation has been higher than other sources of electricity generation, including coal, oil, and natural gas. Abundant, energy dense and easily accessible, fossil fuels continue to be the most common source of electricity generation<sup>5</sup>. Unfortunately, use of these fuel sources creates significant pollutants when used for electricity, including nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), mercury, particulates and carbon dioxide (CO<sub>2</sub>), a greenhouse gas (GHG) and the historical driver of anthropogenic climate change. Electricity generation using renewable fuel sources typically does not emit such pollutants and can help achieve local health benefits, as well as reduce anthropogenic greenhouse gas emissions.

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<sup>3</sup> <http://adfd.irena.org/faq.aspx#7>

<sup>4</sup> Green-e National Standard: <http://www.green-e.org/energystandard>

<sup>5</sup> [http://www.iea.org/stats/electricitydata.asp?COUNTRY\\_CODE=29](http://www.iea.org/stats/electricitydata.asp?COUNTRY_CODE=29)



Sophisticated electricity markets in the U.S. and Canada and elsewhere have created traceable and tradable commodities to incorporate and exclusively convey the distinct non-electricity attributes (e.g. zero emissions) associated with renewable electricity generation. These markets capture the demand for renewable sources, facilitate use of these sources, and enable use of specified generation on a shared electricity grid that can only be tracked and determined contractually. In the U.S., the instrument that is used in both voluntary and compliance markets to convey use and delivery of renewable electricity is the renewable energy certificate (REC), which is described in detail below. Ownership of RECs determines use of renewable generation.

Electricity markets vary greatly from country to country and often yield different options for electricity consumers depending on their electric load. In general, electricity markets function as either liberalized or regulated. In liberalized markets, customers have the option to purchase differentiated electricity products from multiple vendors competing in the same geographic territory. Typically, consumers have the ability to select the provider or product that best fits their organizational needs or preferences. Consumers, particularly larger commercial customers, can often negotiate their contracts to select for preferred generation facilities, generation technology types, rate structures, term lengths, and/or a variety of other options. In regulated markets, electricity vendors are typically franchised for a geographic area and usually assigned or operated by a government agency. In this case, the ability of consumers to negotiate specific details of their contract can be more limited. Certainly, the details for each electricity market are unique, and chronicling specific circumstances by country is outside the scope of this paper.

## VI. RENEWABLE ELECTRICITY PRODUCT TYPES

Globally, there are a variety of different renewable electricity commodities and products that can be purchased by end users, with each type conveying direct and indirect claims to renewable electricity use and generation, depending on the nature and development of the market in which the end user is located and the regulations governing the electricity sector. This section will provide a brief overview of the types of predominant existing products available to organizations, providing a perspective on the attributes included and claims associated with each product. Products covered include standalone or unbundled environmental commodities including RECs, Guarantees of Origin (GOs), green electricity programs, power purchase agreements (PPAs), onsite generation, donation models, carbon offsets derived from renewable electricity generation, direct investment and hosting or leasing of renewable generation equipment.

The products available in any particular country or region often will relate to electricity market structure unique to the country or region. For example, a regulated market may have a monopoly or nationalized utility that does not offer a green electricity option or program in which a commercial customer can enroll. However, a commercial customer may still be able to sign a PPA with a renewable electricity generation facility and claim renewable electricity use provided that the utility or another user does not make a usage claim for the same generation, or purchase the environmental attributes of the generation

using RECs, GOs, or other similar instrument. In many countries, however, several of these mechanisms have not been used or there is no precedent to cite when purchasing the attributes of renewable electricity. Even where this is true, there remain opportunities to specify inclusion of renewable electricity attributes through detailed and specific contract language. In other words, while the absence of established instruments and products within a country or region may present a higher transactional risk, there may be opportunities to rightfully claim ownership of the renewable electricity attributes through appropriate documentation and given protections against double counting and claiming.

## RENEWABLE ENERGY CERTIFICATES (RECS)

A REC represents the property rights to the environmental, social, and other nonpower qualities of one megawatt hour (MWh) of renewable electricity generation<sup>6</sup>. RECs are tradable instruments that can either be used to substantiate voluntary renewable electricity purchase and use, or meet compliance requirements for renewable electricity delivery. RECs represent the exclusive right to claim the environmental attributes associated with renewable electricity generation, such as direct emissions (e.g. a wind farm has zero emissions of CO<sub>2</sub>) and can be traded separately from the underlying electricity. RECs are required for renewable electricity usage claims in the U.S., including onsite claims<sup>7</sup>. Typically a REC includes information on the type and location of electricity generation facility, as well as year of generation (a.k.a. vintage+), renewable resource type, and other characteristics associated with the generator and benefits of generation. Purchasers of RECs should always ensure that their contracts are explicit about which environmental attributes are conveyed through their purchases, since local laws and regulations can sometimes negate a claim to particular environmental attributes. In the United States, it is widely accepted that unbundled RECs combined with grid electricity are functionally equivalent to green power purchases from a local utility (which also must involve the transaction of RECs), regardless of where the REC is sourced within the U.S.

RECs have been used in the United States since the late 1990s, and have been used in other countries, such as Australia, in voluntary markets, and in Indian compliance markets. In the U.S. and Canada, multiple governmental entities at different levels, state/provincial legislation and regulation, regional electricity transmission authorities, NGOs, trade associations, and market participants have recognized that RECs represent and convey the renewable, environmental and/or social attributes of renewable electricity generation to the owner, along with the legal right to claim usage of that renewable electricity<sup>8</sup>. These entities recognize further that without RECs such a claim could not otherwise be substantiated, either by utilities and electric service providers (ESPs) for the purpose of

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<sup>6</sup> <http://www.epa.gov/greenpower/gpmarket/rec.htm>

<sup>7</sup> <http://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf>

<sup>8</sup> [http://www.resource-solutions.org/pub\\_pdfs/The%20Legal%20Basis%20for%20RECs.pdf](http://www.resource-solutions.org/pub_pdfs/The%20Legal%20Basis%20for%20RECs.pdf)

demonstrating compliance with state laws, or by utilities/ESPs, other companies, and individuals for the purpose of meeting voluntary targets.

#### Example Best Practice Claim

We buy wind renewable energy certificates to match XX% of our Pittsburgh~~s~~ bottling plant~~s~~ electricity use

XX% of our California electricity use is matched with renewable energy certificates

#### GUARANTEES OF ORIGIN (GO)

GOs are a European Union (EU)-based commodity that is an electronic document issued on request from an electricity producer in the standardized size of one MWh. A ~~competent~~ body, ~~as~~ designated by the Association of Issuing Bodies (AIB) and assigned by individual EU countries, supervises the issuance, transfer and cancellation (i.e. preventing further GO transfer, in order to substantiate a renewable electricity use claim) of GOs. The information contained within a GO typically includes generation facility location, fuel source, online date, date of generation, as well as a unique identification number and public support received (e.g. through a government financial subsidy). The GO is primarily used for disclosure purposes to prove to end use customers the quantity of electricity that came from a specific generation type. Like RECs, GOs may be traded separately from physical electricity. The most common types of GOs purchased and used in the market are from renewable electricity, due to heightened demand for renewable resource types and the benefits of their use. Like RECs, purchase of GOs from renewable electricity sources combined with default electricity service are functionally equivalent to green power purchases from a utility.

#### Example Best Practice Claim

We buy (technology type) Guarantees of Origin to match XX% of our (facility/country~~s~~) electricity use

XX% of our (facility/country~~s~~) electricity use is matched with Guarantees of Origin

#### POWER PURCHASE AGREEMENTS (PPAs)

Where organizations want to make long-term commitments to use renewable electricity, and where building onsite renewable electricity projects is not an option, some organizations turn to PPAs. With a PPA, a third-party project developer typically coordinates the building and maintenance of a renewable electricity generation facility, which may or may not be located on site. In the U.S., the organization usually has the option to purchase only the power from the developer or purchase both the power output and renewable electricity attributes (e.g. RECs) from the facility. Purchasers looking to

enter into a PPA and make a renewable electricity usage claim must ensure through their contract that they are the sole owner of the renewable electricity attributes (in the U.S., this means owning the RECs) and that no other entity is making or may make a renewable electricity claim on the same MWh. Where renewable electricity attributes are not included in a PPA, the party to the agreement could not claim to be using or receiving renewable electricity, or electricity with the attributes of that specific generator, as a result of that PPA. The purchaser could still benefit from long-term electricity price stability.

#### Example Best Practice Claim

*We buy (technology type) electricity to match XX% of our (facility/country's) electricity use*  
XX% of our (facility/country's) electricity use is matched with (technology type) power

### UTILITY GREEN PRICING PROGRAMS AND COMPETITIVE ELECTRICITY

Throughout the U.S. and Europe there exist opportunities to purchase renewable electricity directly through electricity service providers. In these scenarios, companies often elect enrollment in a green power program and can receive the electricity service providers' specific renewable electricity offerings. The programs are typically offered as a percentage of the customer's total electricity use or in set denominations of kilowatt-hours, or blocks. While the perception of these programs can sometimes cause organizations to think that electrons from renewable electricity are physically being delivered to their facility, the reality is that these programs, just like all renewable electricity sales, are delivering renewable electricity attributes to their customers (often bundled with electricity from the same electricity region). In the U.S., Canada, and Europe, this means procuring and retiring the certificates for the generation, such as RECs, on the customer's behalf. In other markets where these products exist, it is particularly important that the renewable electricity attributes used toward or claimed for voluntary green power programs are not also counted toward resource disclosure for all other customers or claimed for customers that did not sign up for the green power program.

#### Example Best Practice Claim

*We buy (technology type) electricity to match XX% of our (facility/country's) electricity use*  
XX% of our (facility/country's) electricity use is matched with (technology type) power

### ONSITE RENEWABLE ELECTRICITY GENERATION

Some electricity users generate their own renewable electricity onsite, to meet their environmental goals or electricity costs. Onsite generation facilities can range significantly in age, from older hydroelectric or biomass generation equipment to new solar PV or wind

turbines. Companies may obtain the electricity produced from the onsite system as the system owner or system host (in which case a third-party owns the generation equipment but sells the customer electricity). Whatever the particular arrangement is for onsite generation, the critical criterion for the user to make a renewable electricity usage claim in the U.S. and Canada is ownership of the renewable electricity attributes (e.g. REC). If the title to the renewable electricity attributes or a claim to usage of generation from the system are retained by the system installer or lessor, sold to a third party, or are counted by a utility in its default electricity sales, the customer receiving electricity from the system may not claim to be using renewable electricity from the system. However, as long as the electricity user owns the rights to the renewable electricity claim, the claims below can be employed.

### Example Best Practice Claim

*We generate XX% onsite (technology type) electricity for our (country) operations*

*XX% of (facility name's) electricity use is generated onsite with (technology type)*

## DONATION MODELS

In some instances, programs are set up such that renewable electricity purchasers or renewable electricity supporters may donate directly to a fund, which is usually dedicated support the development of a new renewable electricity generation facility. Such funds may or may not be administered independently and have varying degrees of transparency. These models are useful in satisfying the desire for companies to support the development of new renewable electricity and can allow companies to communicate generally that they directly support the development of new renewable electricity. However, it is important for organizations to understand that donation to a fund such as this does not in itself constitute or entitle an organization to make a renewable electricity usage claim (e.g. *%We use renewable energy+*). Such usage claims are only conveyed through ownership of renewable electricity attributes.

### Example Best Practice Claim

*We support renewable energy through direct donations to (technology type) electricity projects in (region/country)*

*We contribute funds to the (insert project name here) to support the development of (technology type) electricity in (region/country)*

## CARBON OFFSETS DERIVED FROM RENEWABLE ENERGY GENERATION PROJECTS

The purchase of carbon offsets from a renewable electricity generation facility does not constitute an accurate claim of *%using renewable electricity.+* It only confers the right to

claim emissions reductions for the purchasing entity, and does not convey any other attributes of renewable electricity generation to the offset buyer.

Carbon offsets and RECs are both tradable environmental commodities. But, unlike a REC or other electricity products, a carbon offset represents a specific quantity of GHG emission reductions (e.g. a metric ton of CO<sub>2</sub>-equivalent reduced or avoided) from a project-based activity or program of activities, and conveys a claim to have reduced emissions from a business as usual baseline<sup>9</sup>. Carbon offsets derived from renewable energy generation projects are not renewable electricity instruments and do not convey usage of renewable electricity to grid consumers. Conversely, renewable electricity instruments such as RECs are not tradable GHG emissions reductions even if they come from projects achieving %additionality+ criteria. However, use of renewable electricity, which is demonstrated by REC ownership in the U.S., can include certain carbon benefits and claims (namely, scope 2 claims related to the emissions associated with electricity usage)<sup>10</sup>. These benefits and claims are different than the all-scopes emissions reduction claims that can be made by a carbon offset purchaser. For example, some products claim to transfer both renewable energy attributes and GHG offsets to customers and are marketed as renewable electricity, when in fact, they are verified as carbon offsets. Buyers should be aware of this distinction.

While the markets for renewable electricity and carbon offsets are different, there are instances where they intersect including at the project level, where a renewable electricity project could meet the criteria for generating both RECs (or a similar renewable energy instrument outside of the U.S.) and carbon offsets. In the U.S., such facilities would not be able to generate both a REC and a carbon offset from the same MWh. Outside of the U.S., or where there is no REC-equivalent instrument, it may be difficult to substantiate a valid claim to be using renewable electricity from a facility that has been credited for carbon offsets for the same generation. However, depending on the landscape of different instruments and commodities in use, or with carefully worded contract language, it may be possible to specify the ownership of individual attributes of generation that are not otherwise owned, claimed, or conveyed separately in other instruments.

### Example Best Practice Claim

*We buy carbon offsets from a renewable energy project to offset XX% of the carbon emissions from our (facility/country) operations*

## INVESTMENTS

Direct investment in renewable electricity allows for clear contribution to new renewable electricity generator development. Some organizations may provide money for investment in project development without taking ownership of the electricity generated or the

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<sup>9</sup> <http://www.etnna.org/images/PDFs/Intersection%20btwn%20Carbon%20RECs%20and%20Tracking.pdf>

<sup>10</sup> [http://www.resource-solutions.org/pub\\_pdfs/RECs&OffsetsQ&A.pdf](http://www.resource-solutions.org/pub_pdfs/RECs&OffsetsQ&A.pdf)

associated renewable energy attributes (e.g. RECs, GOs). Investment in a renewable electricity generation facility alone does not constitute a renewable electricity usage claim. An investor must take ownership of the associated renewable electricity commodities in order to make a usage claim.

While direct investment partners are often used in this scenario, there are other options emerging in the market such as community solar projects or internet based ~~crowdfunding~~. In all cases, ownership of renewable electricity attributes should be made clear in funding agreements to avoid confusion.

### Example Best Practice Claim

*We invest in (facility) to support the development of renewable electricity*

## HOSTING/LEASING

Many commercial entities choose not to own onsite generation, but instead lease or ~~host~~ the generation equipment (e.g. solar photovoltaic) on their property. Typically this arrangement will allow the host company to have a contract (PPA) for electricity with a third party that owns the generator. When making a public claim of renewable electricity use, the host company must contractually claim or retain all renewable electricity attributes (in the U.S., the RECs) associated with this generation being claimed. If ownership of renewable electricity attributes of this generation are not clear in the associated electricity contract, either party is unlikely to have an explicit right to make a renewable electricity claim or sell the attributes to another party. If the host is explicitly not buying the attributes, it cannot claim to be using electricity from the generation facility, but rather is receiving generic electricity service from the lessor without any particular environmental benefit or claims<sup>11</sup>.

### Example Best Practice Claim

*\*CRS and the Green-e program currently does not endorse hosting claims. For generation facilities (like rooftop solar) that are leased, organizations typically procure RECs associated with the generation through their PPA contract. When RECs or equivalent instruments are retained, onsite best practice claims should be implemented.*

## VII. KEY CRITERIA OF RENEWABLE ELECTRICITY PRODUCTS

This section defines important criteria associated with renewable electricity use and purchasing that are applicable across different electricity market and instrument landscapes. These criteria represent a global baseline for specifications to be used in sourcing renewable electricity to support public claims of renewable electricity usage.

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<sup>11</sup> <http://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf>



## OWNERSHIP

Ownership is one of the most critical elements of a renewable electricity purchase. Companies electing to source renewable electricity, whether onsite, PPA, unbundled certificates, or otherwise must ensure that they alone may lay claim to the renewable electricity attributes. Failure to do so will, at best, result in inaccurate or competing claims by one or more parties. At worst, there may be legal ramifications between the parties involved and/or involvement of authorities regulating market misconduct.

Most often, the ownership of renewable electricity attributes is specified in the contract through which the renewable electricity is procured. In the case of PPAs, onsite development, or unbundled RECs, the ownership can be directly transferred to the purchasing party. Where tracking mechanisms exist, or where there is third party certification or appropriate documentation, some purchasers may have the environmental attributes retired on their behalf. In this case, they may never take ownership, but are legally entitled to make appropriate renewable electricity claims.

In some countries, there may be other factors such as national legislation that might designate ownership of environmental attributes and supersede any underlying transaction.

## DOUBLE COUNTING

The broadly defined nature of claims and the intangible nature of renewable generation attributes can result in problems with double selling and double counting, where those particular renewable generation attributes are claimed by more than one party. Double selling can occur if a REC seller sells the same REC to multiple parties. Double counting of RECs could occur if a utility in the US is counting the same renewable MWh to meet both its mandatory renewable requirements and to meet sales of a voluntary green pricing program, or if the owner of solar panels claims to be using renewable electricity while the RECs are contractually owned by another party.

In order to avoid double selling and double counting, contracts for the sale of electricity and attributes should be clear and explicit about the ownership of the environmental attributes (in the U.S., the RECs). Renewable electricity contracts that are silent on the ownership of attributes can create confusion as to attribute ownership, which is detrimental to renewable electricity markets and may result in double selling or double counting as well as legal actions.

The attributes contained within RECs are primarily environmental attributes, such as the emissions rate (emissions per unit electrical output) and the impact that the renewable electricity has on the grid, (e.g. the emissions avoided on the grid) when renewable electricity displaces electricity derived from use of fossil fuels. The ownership of the full suite (or fully aggregated) of generation attributes is what enables a purchase to make a truthful claim about renewable electricity usage. RECs can be traded multiple times before finally reaching the entity making renewable electricity use claims, so long as



intermediaries do not make claims based on the RECs they have held temporarily and re-sold. Once a claim is made, the RECs are considered "retired" and should not be resold to another party or claimed by another party. Retirement can take place formally within a tracking system, or where not tracked electronically, contractually through renewable electricity claims. In short, retirement of a REC is simultaneous with a use claim.

In markets without RECs or equivalent instruments, or without sufficient tracking and/or certification systems, it may be significantly more difficult to verify that there has been no double counting or double claiming, and therefore renewable energy usage claims may be more difficult to substantiate. Even in markets where instruments or tracking systems are well established, it may be necessary to verify that attributes are not being claimed or counted elsewhere, a function that can be provided by independent certification programs.

## INTERACTION WITH COMPLIANCE MARKETS

Renewable electricity purchases may or may not help another entity meet a legislative or legal obligation, such as one of the many state Renewables Portfolio Standard (RPS) that exist in the U.S. Voluntary procurement of renewable electricity that follows best practices will ensure, for example, that none of the underlying attributes or commodities are used towards mandatory generation requirements or claimed as a part of related climate change policies in the country or region of origin. In the case of larger regional generation goals, the EU, for example, may set a mandate, but if the individual generation unit is not serving a specific country mandate then that generation may be allowed to meet voluntary purchases. When thinking about mandates or compliance markets that exist in a country for which a renewable electricity purchase is being made, it is important to remember that the purchaser should be the entity with sole rights to a renewable electricity claim and that their purchase of the commodity is surplus to any regulations..

### UK Example:

In the United Kingdom, different certificates associated with that renewable energy market exist and can often overlap. Renewable Obligation Certificates (ROCs), Renewable Energy Guarantees of Origin (REGOs), and Levy Exemption Certificates (LECs) are all used for distinct purposes. ROCs are used by electricity suppliers to show they've met a renewables mandate. REGOs are guarantees of origin certificates issued to generators within the UK. These certificates comply with the EU mandate to creating a tracking scheme, but are not a part of the EECs-GO system. REGOs are, however, typically the required instrument to be procured for renewable energy claims for voluntary purchases. LECs demonstrate end users are buying and/or using renewable energy and enable purchasers exemption from the government's Climate Change Levy when paired with the REGO.

### EU Example:

In the European Union, a carbon cap and trade systems exists, such that the tradable renewable energy instruments that are used in that market, GOs, represents zero emissions electricity and confer the right to make a renewable energy usage claim. However, because a cap-and-trade system limits the total carbon emissions of the region, any renewable energy installed cannot be claimed to reduce emissions. The purchase of GOs can, however, help accelerate the adoption of renewable energy and help countries advance their timeline for meeting their renewable energy and emissions targets<sup>12</sup>.

## INTERACTION WITH GOVERNMENT INCENTIVES

Many governments provide incentives such as grants, tax incentives, and preferential pricing (e.g. feed-in tariffs) to renewable electricity generators. While receiving government incentives may prohibit certain renewable electricity projects from generating carbon offsets under specific carbon offset project protocols, most incentives used to assist the development of new renewable energy projects do not preclude usage claims or exclusive ownership of generation attributes. The claim to be using renewable electricity does not depend on whether the facility is existing or new, or indeed what caused the facility to be built. In some cases, however, the generation facility must surrender the attributes in order to receive the government incentive. In these scenarios, the buyer should be aware that any public claims of renewable electricity usage made on the same RECs or REC-like commodities would constitute double counting.

## TRACKING

In the U.S., all REC tracking systems serve the same basic purpose. For every MWh of renewable electricity generated by a participating facility, a REC is created and tracked in a certificate tracking system. The REC represents the renewable attributes of the generation and is tracked separately from the electricity. Each certificate has its own unique serial number so that it can be traced from creation to retirement. Along with this serial number, additional information about that REC is tracked, including: date of initial operation, electricity source, generation/conversion technology, fuel type, project location, and vintage (i.e., when the certificate was created). These characteristics are referred to as the primary attributes of the REC. <sup>13</sup>

Tracking of RECs and sales can alternatively be accomplished through chain of custody documentation and auditing, which is used for a voluntary sales in the U.S. when generators are not registered in tracking systems. Whether a tracking system or chain of

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<sup>12</sup> Unlike the EU, the US cap and trade programs reduce emissions (i.e. retire allowances) to support carbon reduction claims for voluntary renewable energy purchases.

<sup>13</sup> <http://www.etna.org/images/PDFs/Intersection%20btwn%20Carbon%20RECs%20and%20Tracking.pdf>

custody documentation is used, auditing of sales information further supports accurate renewable electricity use claims.

Outside of the U.S., attribute tracking systems can help provide similar assurances related to ownership, double counting, and retirement. However, where tracking systems do not exist, as in the case of smaller generators in the U.S., chain of custody auditing and or third-party certification is used to support accurate renewable energy usage claims. Tracking systems may or may not require ~~an~~ attachment of all environmental attributes to the certificate. Buyers should understand assurances provided by tracking systems. Third party certification can ensure, even with tracking system use, that attributes are delivered.

## PROXIMITY OF GENERATION

In the U.S., it is typically accepted that the renewable electricity from which a REC is generated must be delivered into an electricity grid linked to the grid of the electricity consumer using the REC. As an example, California has an integrated grid and therefore RECs generated anywhere in California can be applied to any facility in California looking to make renewable electricity usage claims. Likewise, generation of RECs in California could theoretically be applied to facilities in Florida because despite significant physical distances, California and Florida are subject to a similar regulatory system (siting, environmental, etc.), market structure and oversight. The underlying electrical grid systems throughout many countries and regions vary significantly and may require a distinct application of ~~the~~ proximity boundaries from that which is accepted in the United States.

### Best Practice

The attributes purchased or claimed should be sourced from the same national or regional market as the electricity consumption to which it is applied. Markets for trading energy attribute certificates have historically been country-based or regional, including areas where the laws and regulatory framework governing the electricity sector are consistent (though not necessarily identical) between the areas of production and consumption. For example, the U.S., despite differences in state law and local regulatory policy and variation in physical interconnection within these regions, operates under overarching federal laws and regulations, and therefore constitutes a single market for use of contractual instruments. Where multiple countries or jurisdictions form a single market, a consistent means of tracking and retiring must be established in order to prevent double counting of attributes.

Voluntary electricity labels or GHG reporting programs may restrict the boundary of certificate sourcing further, e.g. to a sub-national entity or an interconnected electricity region.

## GENERATION DATE

A purchase of renewable electricity may not coincide exactly with the time a public claim is made. In general, it is best practice to purchase renewable electricity or attributes (RECs, GOs) whose generation occurred close in time to the purchaser's usage claim. This is especially important when making a public claim about renewable electricity usage. It is not advised to purchase renewable electricity attributes generated in 2008 if an organization intends to use the purchase towards a 2013 claim. Instead, companies should aim to purchase renewable electricity for 2013 from generation that occurred in 2013 or close to it (in the US this tends to include generation from late 2012 through early 2014). While there is not a hard cut-off point to make a claim from a legal perspective (at least none that we are aware of), the claim should be made in a renewable time frame understandable by an informed stakeholder. Some programs, such as GHG reporting programs, may require that renewable energy purchased or generated in the same reporting period as it is claimed.

## Best Practice

*Aim to source renewable electricity instruments (e.g. RECs) that were created with electricity generated close to the period in which renewable electricity usage is claimed.*

## NEWNESS OF GENERATION FACILITY

Though the age of the generation facility does not technically affect the ability to claim usage of generation from the facility, in the U.S. for example, customers buying renewable electricity often want to support renewable electricity generation facilities that have become operational relatively recently to help support market growth for newer renewable electricity. However, this option may not be available to all purchasers. When sourcing renewable electricity, be sure to check the date for which the facility began producing electricity. A general rule of thumb is that project developers expect 10-20 years of revenue to finance a new project. Therefore, if an organization supports a project older than this, it may not be sending a market signal to push for more new renewable generators.

## Best Practice

*Supporting newer facilities helps to drive the market for renewable electricity. At the very least, look to purchase renewable electricity from a facility that has been built within the last 10-20 years..*

*Note: For the purchasers looking to satisfy the U.S. Green Building Council's LEED requirements, purchases will need to be made from facilities that have started generating electricity after 2005 in most cases.*

## RESOURCE TYPE

There may be a distinct demand for different types of renewable electricity sources, which can vary depending on specific circumstances of each country/region. A customer's choice may be influenced by specific local environmental attributes that can be associated with a renewable electricity source. For example, criteria for eligible biomass projects should be evaluated closely in regions with high deforestation rates or where the biomass fuels have long regrowth timelines. Likewise, hydropower electricity (especially large-scale hydropower) is perhaps not the most popular choice in regions when it is associated with social and environmental concerns, including impacts on fish and watershed management, impacts on local communities and a loss of biodiversity. Customers purchasing green power should be attuned to the perceptions of technology types in the local market from which they are purchasing and making claims. Many certification programs for renewable electricity sales take such impacts into consideration when developing resource eligibility criteria, so buying certified renewable electricity may help address potential concerns by an organization's customers and stakeholders.

## VIII. CERTIFICATION PROGRAMS

A variety of certifications exist to help consumers gain assurances that they are receiving high-quality renewable electricity, make responsible claims and mitigate overall corporate risk associated with their procurement methods. These include facility level certification, transaction certification, and usage certification. While nearly all types of certifications have some value, the importance and value of these certification programs can vary by country, region, or market types. This section outlines a few of these types of certification programs and describes their differences and goals.

### FACILITY CERTIFICATION

In many countries, certification is available to assess the characteristics of renewable electricity generation facilities, providing assurances around the type of technology used, the commission date of the facility, repowering activities, capacity of the facility, and production quantities. In addition, some standards assess facilities against a set of ecosystem or cultural criteria. Examples of these types of certifications include *TÜV* (Europe), *EcoLogo* (Canada), *Low Impact Hydropower Institute* (United States), *Naturemade* (Switzerland).

In general, this type of facility level certification can be helpful in locating project sources that meet certain thresholds for environmental compliance and sustainability.

### TRANSACTION CERTIFICATION

Transferring ownership of renewable energy certificates or a similar commodity requires a market with reliable legal and trading mechanisms, as the underlying goods, the attributes of renewable electricity, are inherently intangible. The corporate buyer must have a degree of certainty of the promises from the seller, and that their purchase is unique (no double selling) and entitles them to particular claims. This is where the value of a third party transaction certification lies . in delivering oversight to the transaction. This type of certification minimizes risk to the purchaser, and ensures a degree of transparency and assurance that would otherwise be difficult to obtain.

In the United States, the primary transaction certification program is *Green-e Energy*, operated by the Center for Resource Solutions. This program ensures that the product being sold by a marketer or supplier meets certain supply eligibility criteria for environmentally preferable technologies and newness of generation facilities, along with providing an annual audit to ensure that the supplier has generated or contracted for enough eligible supply to meet all of their consumer sales. Marketing language and disclosure requirements ensure that the purchaser is receiving exactly the product for which they have paid. The program also ensures no double counting and that electricity or certificates purchased is not also used for complying with any legal or regulatory green power requirements.

Globally, there exist a variety of certification programs that operate in a similar fashion, although each with a slightly different scope and criteria. A list of known certification programs is provided below:

<b>Certification Name</b>	<b>Country</b>	<b>Website</b>
OK Power	Germany	<a href="http://www.ok-power.de/home.html">http://www.ok-power.de/home.html</a>
Gruener Strom	Germany	<a href="http://www.gruenerstromlabel.de/english/">http://www.gruenerstromlabel.de/english/</a>
TÜV SÜD	Germany	<a href="http://www.tuv-sud.com">http://www.tuv-sud.com</a>
TÜV Nord	Germany	<a href="http://www.tuv-nord.com">http://www.tuv-nord.com</a>
Bra Mijoval	Sweden	<a href="http://www.naturskyddsforeningen.se/">http://www.naturskyddsforeningen.se/</a>
EKOenergy	Multiple	<a href="http://www.ekoenergy.org/">http://www.ekoenergy.org/</a>
Centoporcento Verde	Italy	<a href="http://www.centopercentoverde.org">http://www.centopercentoverde.org</a>
Naturemade	Switzerland	<a href="http://www.naturemade.ch">http://www.naturemade.ch</a>
Milieukeur Groene Elektricitei	Netherlands	<a href="http://www.smk.nl/19/home.html">http://www.smk.nl/19/home.html</a>
Green-e	United States	<a href="http://www.green-e.org">http://www.green-e.org</a>
Green Power Certification System	Japan	<a href="http://eneken.ieej.or.jp/greenpower/eng/index.htm">http://eneken.ieej.or.jp/greenpower/eng/index.htm</a>
GreenPower	Australia	<a href="http://www.greenpower.gov.au/">http://www.greenpower.gov.au/</a>

It should also be noted that many of these transactional certifications can also include minimum criteria and requirements for facility sustainability and environmental compliance, obviating the need for separate facility certification.

### USAGE CERTIFICATION

In addition to transaction certification, many companies elect to verify or certify their public claims through a third party. This type of certification allows for companies to publicly communicate their renewable electricity purchase with the backing of a third party, often using the certification's logo and claim language when available. Renewable electricity usage verification accomplishes a few key goals for corporate customers: bridging trust gaps with their stakeholders, enhancing public perception, demonstrating organizational leadership and acting as a company or product differentiator thereby providing business value through increased sales.

In the U.S. and Canada, the primary program for verifying usage claims is *Green-e Marketplace* run by the Center for Resource Solutions. This program assesses renewable

electricity purchases and generation as a percentage of overall electricity usage. The scope of the program encompasses North American operations, product manufacturing, electric vehicles and charging stations, and public events, as well as providing a paper and packaging supply chain program. Currently the program is used by prominent companies such as Office Depot, Aveda, Millipore, Kendall Jackson, and BBVA Compass.

Outside of North America, there are a limited number of verification programs. In the absence of a verification program that operates in your country or region, an organization could initiate an independent third party audit to verify usage claims.

## IX. DETAILS ON BASIC PRINCIPLES FOR PUBLIC CLAIMS

For all organizations with intentions of publicly communicating their renewable electricity purchase and usage levels, there are best practice principles to follow related to boundary setting, accounting methodologies, applicability of purchase, and accuracy of communication. This section provides an overview of each of these areas and provides recommendations for purchasers that will help elevate the accuracy of claims and reduce business risk.

### DEFINING CLAIM BOUNDARY

Organizations making renewable electricity usage claims should clearly define the operational and geographic boundary of the claim. For example, companies that would like to make a specific claim about a specific facility's use of renewable electricity should ensure that any public claim references that facility.

Example: "Our Berlin Germany manufacturing facility uses 50% onsite solar electricity."

In scenarios where the purchase or generation of renewable electricity is for a specific activity or facility within a company, companies should avoid making general usage claims such as "We buy renewable electricity." This type of general claim is likely to confuse stakeholders, with the likely misunderstanding of a larger renewable electricity commitment than was actually made.

### GEOGRAPHIC APPLICABILITY

Any RECs, GOs, or similar instruments that are purchased for making a renewable electricity usage claim should be purchased from generation that occurs from a renewable electricity generation facility tied to the same electricity market as the facilities making the claim. It would be inappropriate, for example, for GOs purchased in Europe to be applied to facilities in Indonesia.



## USAGE VERIFICATION

Risk from any public claims made by a corporate entity regarding renewable electricity usage or generation can be reduced by using independent verification by a third party to compare their renewable electricity purchase against electricity usage. While verification can also be performed by a reputable audit firm, there are usage verification and recognition programs available such as *Green-e Marketplace*.

## VINTAGE MATCHING

In general, a public claim related to renewable electricity usage should ensure that the vintage (date of generation) of renewable electricity used is reasonably close to the year of the energy consumption and public claim to which the instrument is applied, consistent with existing standards for the market where the contractual instruments exist.

## ACCURACY AND SPECIFICITY

When making a public claim, it is *always* recommended that the claim accurately reflect the actions taken by an organization. In addition, an accurate claim should also be specific enough to ensure reasonable understanding of the materiality of the renewable electricity purchase. For example, it may be *accurate* for an organization to state *we buy renewable electricity*, however, if the purchase only represents 1% of the organization's total global electricity use, the lack of specificity made in the claim would likely lead to confusion. In making an accurate and specific claim, the following information is pertinent and often of interest to an organization's customers and stakeholders:

- Was the renewable electricity generated onsite or purchased through a renewable electricity product?
- What is the boundary for which the claim is being made (e.g. local facility, country operations, product manufacturing, etc.)?
- What type of renewable energy was used or represented by the purchase (e.g. wind, geothermal)?
- What amount or percentage of renewable electricity was purchased?
- Over what time span will the electricity be used?
- Are there other specifics that should be communicated?

Examples:

In 2014, our bottling plant used 25% solar electricity generated onsite

This year we purchased RECs from New England wind farms for 50% of the electricity at our Boston headquarters.

## GOVERNMENT GUIDANCE

While CRS recommends specific claim language as cited throughout this document, there may be more relevant, or even required, language specific to a particular country. The language we recommend has been influenced by the primary agency involved in providing guidance on environmental marketing in the U.S., the U.S. Federal Trade Commission. Through their [Guides for the Use of Environmental Marketing Claims](#), they provide specific guidance on the expectations of U.S. consumers around terms such as [made with renewable electricity](#). Organizations looking to make public claims about renewable electricity purchases should check to see if there are relevant local laws, guidelines, or agencies that guide renewable electricity marketing claims within the country for which a renewable electricity purchase is made.

## GHG ACCOUNTING

From a greenhouse gas perspective, most renewable electricity sources can be classified as zero or low emitting sources. A major benefit of making qualifying renewable electricity purchases is the ability of the purchaser to make a rightful claim of using [emissions-free](#) electricity. Renewable electricity purchases and claims can be used in GHG accounting and reporting systems and inventories.

## X. CONCLUSION

Companies and organizations around the world and of all sizes are increasingly integrating responsible and sustainable procurement methods into all aspects of their operations, including energy and electricity. Sourcing environmentally responsible renewable electricity provides myriad benefits, including, but not limited to: lower greenhouse gas footprints, company and product differentiation, credit toward green building certifications, electricity cost savings and/or stability, employee recruitment and retention, and improved public relations. Whatever the strategic reason for purchasing renewable electricity, all organizations should understand the available options in different markets and the best practices for sourcing renewable electricity and making robust claims. There are a wide variety of ways to purchase or support renewable electricity depending on where purchasing entities are located and the structure of electricity markets in those locations. Selecting which product type or investment method works best for organizations will require them to clearly define their purchasing goals and assess criteria for renewable energy purchasing described in this paper:

- Ownership
- Double Counting
- Interaction with Compliance Markets
- Interaction with Government Incentives

- Tracking
- Proximity of Generation
- Generation Date
- Newness of Generator
- Resource Type

These best practices for procuring renewable energy should always be kept in mind, and the renewable electricity purchased or supported should be clearly and accurately communicated.

Many of the renewable electricity product types and certifications detailed in this paper are part of markets that are growing and shifting at a rapid pace. We expect that as these markets continue to grow in the coming years, there will be new instruments and innovative options for supporting renewable energy, both directly and indirectly. As these new products and options emerge, organizations should continue to follow best practices in evaluating the attributes of products as well as the principles behind responsible public claims.