# Overview of International Voluntary Renewable Electricity Procurement and Public Claims

Version 1.0

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# 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.

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# II. INTRODUCTION

Over the last few years, organizations of all sizes have been increasingly using renewable electricity[1] 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[2] 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

[1] Renewable energy throughout this paper refers to renewable electricity, RECs, GOs, or other commodities representing renewable electricity

[2] See Guide to Purchasing Green Power: 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

## 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*[3]*.* 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[4]. 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

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

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[6]. 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 $CO_2$) and can be traded separately from the underlying electricity. RECs are required for renewable electricity usage claims in the U.S., including onsite claims[7]. Typically a REC includes information on the type and location of electricity generation facility, as well as year of generation (a.k.a.

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

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

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.

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 $CO_2$-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[9]. 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

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

## 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

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

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

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

## 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

### 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

# 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

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:

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

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

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

## 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

## 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

- 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 accurate 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.