



Green-e Framework for Renewable Energy Certification

Version 1.0
July 7, 2017

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I. Introduction and Structure

Green-e® is a certification program that promotes the use of high-quality renewable electricity by providing environmental standards and consumer protection to support consumers' choice to purchase and use renewable electricity. High-quality renewable electricity standards and certification accelerate the development of renewable generation and renewable electricity markets, and provide consumers a meaningful mechanism to express their demand for renewable electricity. Green-e has supported consumers' choice to use renewable electricity since 1997, when the program was developed by the NGO Center for Resource Solutions (CRS).

This Green-e Framework for Renewable Energy Certification ("Framework") document provides baseline criteria that can be used to develop Green-e certification standards ("Regional Standards") for different regions of the world. This Framework is not a certification standard on its own. CRS develops Regional Standards by applying the Framework where there is local stakeholder interest and demand, through interaction and consultation with stakeholders and based on an initial feasibility assessment. After a Regional Standard has been approved by the Green-e Governance Board, CRS will offer Green-e certification in that region. Electricity users can purchase and support Green-e certified renewable electricity wherever a Regional Standard has been developed.

Regional Standards address country- and region-specific concerns and respond to local purchasing interest, while meeting the common set of criteria in this Framework. Each Regional Standard sets certification criteria in one or more countries, a region or an electricity market for providers of renewable electricity or renewable energy attributes, and for consumers of electricity who generate or directly purchase renewable electricity.

Green-e certified transactions must go through an annual verification process to ensure that the renewable generation supplied meets program requirements, including that it:

- is from new renewable electricity generation facilities
- meets resource-type eligibility screens to promote sustainable energy types
- contains all of the environmental attributes of the generation that can be owned
- meets and exceeds criteria for Scope 2 greenhouse gas accounting contained in the *Greenhouse Gas Protocol Scope 2 Guidance* published by the World Resources Institute
- fulfills the advertising claims made by the seller
- is not sold more than once
- is not claimed by multiple electricity end-users
- is not counted against relevant electricity mandates

Additional details about the Green-e certification criteria, the application process, a summary of the verification process, and product and marketing claims requirements are available at www.green-e.org.

A. Definitions

Green-e publishes a glossary that defines many of the terms used throughout this Framework and other Green-e documents. The glossary is available at: www.green-e.org/glossary. Certain specific definitions are also provided below:

Energy Attribute Certificate (“EAC”): A contractual instrument that represents and conveys all attributes of renewable electricity generation, without requiring that the electricity itself be sold with the attributes. Such attributes include, but are not limited to: the renewable resource type used to generate the electricity; the location of the generation; the time of generation; the air emissions associated with generation (i.e. the emissions factor or rate); all other legally available environmental benefits of generation; and all other information relevant to using and claiming the benefits of generation. When a generator delivers electricity to the grid, it is able to sell these attributes bundled together in the form of an EAC to another party who draws electricity from the grid, as a means of tracking who is buying and using the renewable electricity. EACs as defined here are intended to be consistent with The World Resources Institute’s *Greenhouse Gas Protocol* for the purposes of greenhouse gas accounting and Scope 2 claims. EACs may be given specific names in different markets (for example, Guarantees of Origin in the EU), and Regional Standards identify which EAC can be used in the region.

Energy Attribute Certificate Product: EACs when they are procured without electricity in a Green-e certified transaction. See also Section II.A.1 for definitions of different Renewable Energy Product types. Note that in markets where EACs exist, they must be used to substantiate the delivery of any type of renewable electricity program or renewable energy purchase, not only EAC Products.

Participant: Entities providing Green-e certified renewable energy products (either to other entities or to themselves) are referred to as “Participants” in this Framework. Participants may be electricity service providers, sellers of renewable energy attribute certificates, the providers or purchasers under a renewable electricity power purchase agreements or entities undertaking other means of procuring and consuming renewable electricity; see Section II.B for further details. Each Participant must have one or more contracts with CRS in order for their Renewable Energy Products to be Green-e certified. Only Participants may market and sell Renewable Energy Products as Green-e certified. Unless specifically permitted by CRS, marketing renewable energy as Green-e “eligible” or “certifiable” (or using similar words that imply certification where it does not exist) is not allowed.

Renewable Energy Products: The renewable energy procurement options certified by Participants under Regional Standards are collectively referred to as “Renewable Energy Products” in this Framework. See Sections II.A and II.B for details of which product types are eligible. Renewable Energy Products include all EAC Products and renewable electricity programs offered by an electricity service provider. Note that EAC Products and renewable electricity programs / products are distinct and may be subject to different rules in the Framework and Regional Standards.

Region: The specific country, countries, contiguous geographic area, or electricity market where Green-e certified Renewable Energy Products are intended to be offered under a Regional Standard. The boundaries of a Region may be defined by consistent or compatible electricity regulation across multiple jurisdictions, areas of interconnected electricity transmission and/or trading, governmental boundaries or other practical boundaries. For example, Iceland could be considered part of the EU electricity market, or Indonesia may be treated as one market, despite a lack of physical interconnection with other parts of the market. Region boundaries are determined by CRS and the Green-e Governance Board with stakeholder input during the Regional Standard development process.

Regional Standard: A set of criteria for Green-e certification that is developed under this Framework for a specific country (or countries), geographic area or electricity market, serving as a certification standard for that Region.

Reporting Year: The calendar year (January 1 – December 31) in which a Green-e certified Renewable Energy Product is provided to an electricity user. For certified renewable electricity products (Section II.A.2), this is the year that the electricity is delivered to a customer. For certified Energy Attribute Certificates (Section II.A.1), this is generally the calendar year of electricity use to which the customer wishes to apply the certificates. Sales and use of Green-e certified Renewable Energy Products are verified annually based on their Reporting Year. Regional verification rules will contain instructions on when to report sales and use.

B. Use of the Framework

The Framework contains rules that are used as a baseline to develop Regional Standards. The rules in the Framework are applicable to all eligible Renewable Energy Product types, customer types and areas of the world. Stakeholder feedback during the development of each Regional Standard will address the application of the Framework criteria to the regional context. A Regional Standard may contain criteria that are stricter than the minimum requirements contained in this Framework and/or add other criteria important for meeting the intent of the Green-e program. The Framework is not a certification document; certification can only be granted by CRS under an approved Regional Standard. In the event of any conflict between the English version of any Green-e document and a translated version, the English version shall prevail.

C. Geographic Range of the Framework

Any Region—country (or countries), geographic area, or electricity market—is eligible for consideration under the Framework so long as all applicable rules can be met. CRS, which administers Green-e, reserves the sole right to determine whether to pursue the development and approval of a Regional Standard in a particular Region.

D. Structure of the Framework

Criteria for Renewable Energy Product eligibility are contained in Sections II – V, which provide broad rules that each Regional Standard must use as a basis for the development of specific criteria that are applicable to the Region.

Governance and the treatment of updates to the Framework are described in Section VI.

Current Regional Standard documents are referenced in Section VII.

Guidance for how new Regional Standards will be developed is provided in Section VIII.

II. Eligible Product, Customer and Market Types

A. Renewable Energy Product Types

The following Renewable Energy Product types may be Green-e certified, where legally available in the Region and upon approval by the Green-e Governance Board for use in a Regional Standard. In Regions where Energy Attribute Certificates are the means of owning, tracking and claiming renewable electricity use, such Energy Attribute Certificates must be included in all Renewable Energy Product types offered in that Region.

1. Renewable Energy Attributes (including when sold as Energy Attribute Certificates): Sale or use of the attributes of renewable electricity generation that are provided independently from the delivery of electricity, where such attributes are the legally enforceable way to demonstrate the ownership, transfer and end-use of renewable electricity within the Region. All Energy Attribute Certificate Products fall under this category. Examples include Guarantees of Origin in the European Union and Renewable Energy Certificates in the U.S.
2. Renewable Electricity Products: Products where electricity and renewable energy attributes are delivered together, as a single product or electricity tariff. Examples include voluntary renewable electricity programs offered by an electricity service provider or renewable electricity power purchase agreements. See Section III.E for information on when EACs that have been purchased by the Participant separately from electricity may be used in certified Renewable Electricity Products.

B. Renewable Energy Provider and Procurement Types

An electricity user can obtain a Green-e certified Renewable Energy Product through any of the following procurement types, all of which require that the renewable attributes be conveyed to the customer claiming to use renewable electricity:

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1. Electric service providers, including:
 - a. incumbent/monopoly electricity service providers, such as a state-owned electricity provider
 - b. electricity service providers in a deregulated or competitive electricity market, where electricity users may choose their electricity service providers
2. Providers of renewable energy attributes (e.g. EACs) separate from electricity service. Such providers may be electricity service providers also, or companies that provide renewable energy attributes but not electricity service.
3. Procurement directly from a generator that is not owned by the electricity user. Either the generator owner or the purchaser may sign up to certify the Renewable Energy Product. Such procurement may take the form of:
 - a. Power Purchase Agreements (contracts directly between an electricity user and a generator or a generator operator)
 - b. Leased generation equipment that is installed on property owned by the electricity user
 - c. Shared renewables programs, whereby electricity consumers purchase shares of a renewable generation facility, or other forms of sharing the output of a facility, such as community renewables programs
4. Self-use of renewable electricity produced by user-owned generation equipment. The electricity user may sign up to certify their own Renewable Energy Product that they will use themselves and not sell to others. Self-use options include:
 - a. The electricity user consuming electricity from an on-site generator that they own
 - b. The electricity user consuming electricity from a generator that they own that is located at a different location from the electricity use, where there is a direct electrical connection between the user and the generator (sometimes called an “over the fence” arrangement or a “direct line” connection)

C. Customer Type and Location

By default, all Regional Standards allow Green-e certified Renewable Energy Products to be sold to non-residential/commercial/industrial electricity consumers.

Certified Renewable Energy Products may only be sold to residential consumers¹ in Regions where Green-e has issued marketing guidance and compliance requirements for residential sales.²

Green-e will only certify the wholesale sale (i.e. to an entity other than a retail electricity user) of Renewable Energy Products if there is market relevance, demand, and benefit. Renewable Energy Products purchased in Green-e certified wholesale sales cannot be marketed or resold as Green-e certified unless the reseller has its own contract with CRS to sell a Green-e certified Renewable Energy Product.

Regarding customer location, Green-e intends that electricity consumers may claim to be using renewable electricity if they purchase a Renewable Energy Product that is certified under their Region's Regional Standard. Green-e does not endorse renewable electricity usage claims based on purchases of Renewable Energy Products certified under the Regional Standard of a Region other than that in which the consumer is located. However, Green-e does not specifically prevent sales made to customers located outside of the area of a Regional Standard.

III. Eligible Sources of Supply

The following criteria apply to all Green-e certified Renewable Energy Products. In addition, Regional Standards specify any requirements related to the social and environmental impacts of projects in that Region. Based on local practices and issues, stakeholder feedback, or market development goals, Regional Standards may require that certain generators or resource types are certified by an independent sustainability certification body that is more relevant to the Region.

A. Renewable Resource Types

The following types of renewable electricity resources are eligible to be used in Green-e certified Renewable Energy Products. Energy sources other than electricity are not eligible (e.g. solar water heating or waste heat recovery from fossil fuel combustion). Regional Standards may define further criteria for any of these resources:

1. Solar, including photovoltaic and solar thermal electric
2. Wind
3. Geothermal

¹ In general, residential (or domestic, or non-commercial) electricity consumers equate to electricity meters that are associated with spaces used primarily as dwellings rather than those used for business activities. Specific definitions of different customer types are provided in Regional Standards as necessary, based on local definitions and practices.

² The existence of marketing guidance will be noted in the applicable Regional Standard.

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4. Ocean-based energy captured through tidal, wave, or ocean thermal energy conversion technologies, if located in an area with permitting processes specific to the particular ocean resource type at the time of construction, or if the generator is reviewed and approved by the Green-e Governance Board prior to the generator's output being used in a Green-e certified Renewable Energy Product
5. Hydropower that is:
 - a. either not on an impoundment or is generation capacity that was added to an impoundment that existed before the applicable New Date (see Section III.C)
 - b. a turbine in a pipeline, irrigation canal, or other conduit as long as any energy used to create the flow of water/hydrostatic pressure is primarily for non-energy purposes such as transporting potable water, irrigation, or waste transport, and not for creating energy storage

Incremental output due to efficiency upgrades for hydropower meeting either criterion above may be allowed if criteria and a method for validation are developed and approved for the applicable Regional Standard.

6. Solid, liquid, and gaseous forms of biomass must meet or exceed the criteria in items a.–g. below as applicable. In addition, Regional Standards must include definitions of eligible biomass based on feedback from stakeholders, including local environmental stakeholders.³

Green-e strives to promote biomass resources that, on a total fuel cycle basis, do not increase atmospheric greenhouse gas concentrations in timeframes that are meaningful in addressing global climate change. Green-e reserves the right to exclude biomass fuels from a Regional Standard if it is determined that meeting the intent of the Green-e program cannot be substantially ensured through existing infrastructure and compliance tools in a particular region, or if it is determined that the inclusion of such criteria does not significantly advance the intended market impact of the Framework or Regional Standard.

- a. Woody waste, including but not limited to residues such as tops and limbs and urban wood waste, if adverse environment impacts are satisfactorily addressed in a Regional Standard, is eligible if the following requirements are met:
 - i. The fuel contains 1% or less by BTU value of the following: paints, plastics, Formica, halogens, chlorine, or halide compounds like chromated copper arsenate-treated materials, arsenic, and other contaminating treatments.
 - ii. For forestry-derived fuels to be eligible, a Regional Standard must address overall sustainability of the fuel, for example through

³ Green-e reserves the right to require additional documentation to verify eligibility of any resource. In some instances, third-party certification may be used to demonstrate eligibility. Green-e staff will evaluate whether or not such additional documentation and certifications are adequate.

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requirements that are consistent with recognized third-party forestry and biomass certifications, such as the Roundtable on Sustainable Biomaterials, Forest Stewardship Council, or equivalent. Such fuels must also:

1. originate from forests that were managed in accordance with State, Provincial, or National (or equivalent relevant administrative jurisdiction) best management practices and regulations; and
 2. have been removed in accordance with State, Provincial or National (or equivalent relevant administrative jurisdiction) best management practices and regulation
- iii. The fuel is not derived from whole trees unless at least one of the following is met:
1. The whole trees are urban wood waste
 2. The whole trees are thinnings required for road maintenance of existing roads and such roads are not on legally protected lands, areas that possess or enhance identified conservation values, UNESCO World Heritage sites, Ramsar sites, IUCN Protected Areas Types 1 & 2, Alliance for Zero Extinction sites, or any legally protected areas. No woody biomass from road-building activity is eligible
 3. The whole trees are already downed naturally or killed naturally by wind, storms, fire, pests, or pathogens
 4. An independent, third-party, qualified in sustainable forestry management and chain of custody issues, certifies that the whole trees are not sourced from legally protected lands, areas that possess or enhance identified conservation values, UNESCO World Heritage sites, Ramsar sites, IUCN Protected Areas Types 1 & 2, Alliance for Zero Extinction sites, or any legally protected areas, and are part of a thinning plan that improves the ecology in terms of natural forest structure, protection of biodiversity, and ecosystem function of the surrounding area
 5. An independent, third-party entity, qualified in sustainable forestry management and chain of custody issues, certifies that whole trees derived from plantations are not from plantations⁴ that were established on land converted from any other forest after 2012,⁵ and that the thinning improves the ecology, biodiversity, and ecosystem function of the forest and surrounding area

⁴ Plantation is defined as: A stand of trees maintained by planting or artificial seeding, grown for the purpose of harvest.

⁵ If land was a plantation prior to 2012 but is no longer being managed as a plantation (e.g. the majority of existing trees have been regenerated naturally), it does not qualify under this provision and must be evaluated under Section III.A.6.a.iii.4 immediately above.

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- b. Agricultural crop residue that is unmerchantable as food (or as animal feed). For the purposes of this Framework, a tree is not an agricultural crop⁶
 - c. All animal and other organic waste, including waste and residues of biological origin from agriculture (including vegetal and animal substances) and from forestry and related industries where not otherwise expressly prohibited in the Framework or a Regional Standard⁷
 - d. Energy crops that have a rotation less than 10 years and meet at least one of the below criteria:
 - i. grown on agricultural land not in use for food production in the last two years
 - ii. grown on agricultural land in a way that does not displace food production
 - e. Landfill gas and wastewater methane⁸
 - f. Waste-to-energy (WTE) technologies that use biogenic resources and that are mature in the Region. Regional Standards must include criteria to address the environmental impacts of WTE technologies. Municipal solid waste is specifically excluded from eligibility and from WTE technologies that will be considered.⁹
 - g. The following biogenic resources are excluded from eligibility in all cases:
 - i. resources directly related to palm oil production (e.g. palm oil, biogenic material)
 - ii. agricultural crops and animal feed
 - iii. railroad ties and utility poles
7. Biodiesel (B100), biomethane, biogas, bioethanol, green diesel, or syngas that are used to generate electricity. Feedstock used to make biofuel must either be waste that is no longer suitable or merchantable for its primary purpose, such as waste vegetable oil, or some other feedstock whose energy and carbon balance is demonstrably favorable.

All feedstocks must qualify under the criteria listed under Section III.A.6 above. Biogas may be produced at any time prior to electricity generation, but all renewable electricity must meet the requirements in Section III.B, below. Biogas from a shared pipeline is

⁶ For example, crops intended for human consumption but damaged by drought or storms would qualify, as could crops with a non-energy primary purpose, such as waste from animal feed production. Green-e does not consider a tree an agricultural crop.

⁷ In the case that a biogenic methane capture and destruction project (such as a dairy burning biogas produced by an animal waste digester) is receiving carbon offsets for the destruction of methane, renewable electricity generated using the heat of combustion of such methane are eligible under this Framework so long as the calculation of carbon offsets does not include the environmental benefits arising from generation of renewable electricity or of backing down generation elsewhere on the grid. Green-e staff reserve the right to request offset calculation methodologies of such projects.

⁸ Biomethane that is used to generate electricity is eligible for Green-e provided that the facility generating the electricity complies with all applicable laws, regulations, and ordinances, and meets all of the air pollution, groundwater, and effluent requirements of the area in which the project is sited.

⁹ Municipal solid waste is defined as mixed garbage and other waste materials generated by individuals and businesses, but excluding sewage, industrial and agricultural waste, and construction and demolition waste.

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eligible only if it can be demonstrated that all environmental attributes are appropriately transferred along the chain of custody.

Biofuels blended with petroleum diesel are permitted if all of the following conditions are met:

- i. The biofuel is separately measured (and verified) from the petroleum diesel
 - ii. Green-e is able to verify that the biofuel was converted to electricity
 - iii. Co-firing requirements in Section III.C.1.d are met
8. Fuel cells are eligible only if powered by fuels derived from one or more of the eligible renewable resources in this Section III.A, where fuel production, delivery, and use can be verified.

B. Vintage of Eligible Renewable Generation

A Green-e certified Renewable Energy Product may include only renewable electricity and EACs that are generated in: the calendar year in which the certified Renewable Energy Product is sold (called the "Reporting Year," see Section I.A for a more detailed definition), the six months prior to the Reporting Year, or the three months following the Reporting Year. If there are laws in a Region or compelling market reasons assessed through stakeholder processes that demand a shorter period (e.g. generation occurring only in the Reporting Year), this may be allowed in a Regional Standard.

C. Generator Age and "New Date"

In order for the output of a generator to be used in a Green-e certified Renewable Energy Product in a particular Reporting Year, the generator must have first come online (III.C.1.a) or undergone certain changes (III.C.1.b-e) within the past 15 calendar years (inclusive of the Reporting Year). The time limit for an eligible generator is referred to as the "New Date." For example, the New Date applicable to reporting year 2017 is 2003, and the New Date for reporting year 2018 is 2004, and so on.

1. Generator "New Date" Requirements

A generator must meet at least one of the following conditions in relation to the New Date that applies to the Reporting Year:

- a. The generator was placed in operation (generating electricity, including test electricity put onto the electricity grid) on or after the applicable New Date
- b. The generator is a separable improvement to or enhancement of an existing operating electricity generation facility that was first placed in operation prior to the applicable New Date, such that the proposed incremental generation is contractually available for sale and metered separately from the pre-existing generation at the facility

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- c. The generator performed a 100% switch from a non-eligible fuel to an eligible fuel on or after the applicable New Date
- d. The generator began co-firing eligible fuels with non-eligible fuels on or after the applicable New Date. In this case only the electricity output attributable to the eligible fuel is eligible for use in a certified Renewable Energy Product. Calculation and verification methodologies must be approved by the Green-e Governance Board in order for co-firing to be used in a Regional Standard
- e. The generator was repowered on or after the applicable New Date. Repowering assessment and verification methodologies must be approved by the Green-e Governance Board in order for repowering to be used in a Regional Standard

2. Exceptions to "New Date" Requirements

Long-term purchases or use of renewable electricity or EACs may be allowed to remain eligible for the full contract term or 30 years, whichever is shorter, where the purchase contracts were executed between the generator and purchaser of the certified Renewable Energy Product no later than 12 months after the date that a generator first met one of criteria a.–e. above and where the contract term extends beyond 15 years.

If there are compelling, data-supported reasons why changing the 15-year New Date is required for market growth and sustainability, the Green-e Governance Board may approve such a different New Date in a Regional Standard. Examples include a New Date that:

- a. is shorter or longer than 15 years
- b. is a fixed year that remains the same each Reporting Year, until the oldest allowable generator is 15 years old, after which the rolling date is used¹⁰
- c. allows an annually increasing proportion of generation to come from generators that meet the New Date criteria¹¹
- d. Treats certain types of resources, generators or contracts differently

¹⁰ For example, if policies were adopted in the Region allowing voluntary sales of EACs starting in 2010, then a Region might wish to set the New Date as 2010 until generators that came online in that year are more than 15 years old. In this scenario, the New Date would be 2010 until 2024, and then starting in 2025 the New Date would be 2011 and it would increase by one year with each year that passes, and agreeing with the New Date table above.

¹¹ For example, certified sales made in 2018 year must contain at least (for example) 20% renewable generation from facilities with commercial online dates of 2004 or later, with the remaining 80% of renewable generation coming from eligible generators that came online at any time. In 2019, 40% of generation would come from facilities with commercial online dates of 2005 or later, and each year the proportion would rise until 100% of supply came from generators meeting the New Date age criteria.

D. Location of Eligible Generators

1. Geographic Location

Generators providing electricity or attributes for certified Renewable Energy Products (see Section II.A.2) must be located within the Region.

However, the following two rules may be applied if there is stakeholder support and approval by the Green-e Governance Board:

- a. Generators located outside of the Region may be allowed as eligible if there is transmission grid integration with the Region, cross-border power transmission and/or trading with the Region is deemed sufficient, and all other requirements of the Regional Standard can be met.
- b. Regional Standards may define electricity-sourcing boundaries that are more geographically constrained—for example, limiting electricity sourcing to certain sub-Regions and requiring that customers be served by electricity generated in their same sub-Region.

2. Connection to the Grid

a. Renewable Energy Products that are sold by a Participant to another entity

All eligible generators must be connected to an electricity grid (this could include connection to a microgrid that is able to connect to the grid). Generators that are not connected to a grid are not eligible. Generators that are part of a microgrid that is not connected to the grid may only be used for certified Renewable Energy Products sold to consumers in the same microgrid.

b. Renewable Energy Products used and certified by the Participant itself

All eligible generators must meet at least one of the following criteria:

- i. Be electrically connected to a grid
- ii. Be part of a microgrid to which the Participant is connected
- iii. Be electrically connected only to the Participant (including when the Participant is not connected to the grid). The generator may be customer-sited

3. Customer-Sited Generators

Customer-sited (including behind-the-meter) generators are eligible for:

- a. Certified on-site use
- b. Certified Renewable Energy Products sold to off-site electricity users. The following types of generation from customer-site generators can be eligible, and may be treated differently in a given Regional Standard:

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- i. Excess generation that is exported to the grid and metered at the point of grid interconnection
- ii. Generated electricity that is physically consumed by the customer where the customer is not making claims on the renewable electricity or renewable energy attributes

See also Section IV.C on claims.

E. Electricity Products that Combine EACs and Undifferentiated Electricity

This section applies to markets where EACs are the legally enforceable means to convey renewable electricity delivery and usage claims.

If all of the following conditions are met, then EACs are allowed to be combined with undifferentiated electricity or system mix electricity for sale as a certified renewable electricity product.

1. For the electricity delivered with the EACs, the emission rates per kWh for SO₂, NO_x, and CO₂ do not exceed the lower of:
 - a. The average emission rates of the consumer's electricity service provider; or
 - b. The average emission rates of the geographically smaller territory of the affected country or Region
2. The electricity delivered with the EACs cannot include any specific purchases of nuclear power in the non-renewable portion of the Renewable Energy Product, beyond what is contained in system power (e.g. the Renewable Energy Product may not include differentiated nuclear power)
3. For the electricity from which the EACs were derived, there are processes, policies and/or other methods in place with the electricity service provider and/or by the relevant government entity (or entities) assuring that such electricity is not marketed or represented as renewable electricity that is delivered to retail electricity users.

If criteria 1. – 3. above cannot be met, then the Renewable Energy Product will either need to be marketed as a renewable energy attribute product or the Participant must purchase both the electricity and EACs from the generator and provide both to the customer.

F. Emissions Limits

All generators must be in compliance with all applicable local, sub-national, national, and regional laws/rules regarding emissions limits and other relevant emissions-related criteria in the Region.

G. Parasitic Load

Renewable electricity generated and then consumed by the generator, without being delivered to the grid, as part of the electricity generation process (i.e. parasitic load) is not eligible.

IV. Renewable Energy Product Specifications

A. Fully Aggregated Renewable Energy Attributes

To the extent allowable under the Region's legal and regulatory structures, all attributes that are associated with the electricity generation and that can be owned must be included in a certified Renewable Energy Product. There must be a legally enforceable contract, instrument (such as an Energy Attribute Certificate), or collection of contracts and/or instruments in place to substantiate the exchange and exclusive ownership of the attributes of renewable electricity generation. These attributes include, but are not limited to, all the greenhouse gas (GHG) emission benefits associated with the megawatt-hour (MWh) of renewable electricity when it was generated, including avoided CO₂ benefits.

A renewable electricity generator creating carbon offsets and renewable electricity for the same electrical generation must retire an equivalent amount of its own offsets from the same monitoring period as the electricity generation in order for its renewable electricity/EACs to be eligible.

Where it is not legally possible to include an attribute in a Renewable Energy Product,¹² the Regional Standard may establish that the inclusion of such an attribute is not required. In this case, the Participant may need to disclose that the particular attribute is not included in their purchase. Details on claims and disclosures would be detailed in marketing guidelines for the Region.

1. Energy Attribute Certificates

Energy Attributes Certificates (or similar contractual instruments) must be included and retired/cancelled by or on behalf of the purchaser of a Green-e certified Renewable Energy Product, in all cases where such certificates are used to convey the attributes of specified renewable electricity generation or used to otherwise transact renewable electricity for delivery and usage claims/reporting or for compliance with a renewable energy mandate or target (for any or all attributes).

¹² For example, if a Region has policies or instrument trading programs that have the effect of preventing a certain attribute from being owned, causing the value of a certain attribute to be 0, affecting the value of a certain attribute or requiring that a certain attribute be sold to another party.

Where separate certificates or instruments are created for different attributes of renewable electricity generation, all instruments (or the same amount that was created by the electricity generation) must be obtained and retired on behalf of the Green-e certified Renewable Energy Product.

In Regions where certificates are not issued to or on behalf of the generator and there is no tracking system (see Section V.B) available, the attributes of generation must be assigned by contract to the buyer of a Renewable Energy Product in order for such a generator and its output to be eligible for use in a certified Renewable Energy Product.

2. Emissions Trading Scheme/Cap-and-Trade Mechanisms for Greenhouse Gas Emissions

Where the GHG emissions from the electricity sector are regulated through a program that is legally binding,¹³ it must be demonstrated how eligible renewable generation either affects grid emissions under such a GHG emissions regulation or maintains its full avoided carbon value through some other mechanism:

- a. Regional Standards may not require Participant to take further action related to the avoided grid GHG emissions benefit of the renewable electricity where it can be demonstrated that the effect of eligible voluntary renewable electricity generation on grid emissions was included in either:
 - i. Calculation of the cap; or
 - ii. The emission reduction baseline upon which emissions reduction requirements are based.
- b. If the GHG emissions regulation has an accounting mechanism that retires CO₂ emissions allowances on behalf of voluntary Renewable Energy Product sales and transactions, then the accounting mechanism must be used by the Participant.
- c. If neither a. nor b. applies, then the Participant must:
 - i. Retire / cancel allowances or other similar GHG emissions compliance instruments from the same GHG emissions regulation, where such compliance instruments are available to the Participant or electricity consumer; or
 - ii. If specifically allowed in the Regional Standard, retire / cancel Green-e Climate certified offsets.

Other mechanisms and/or actions may be allowed depending on stakeholder feedback, the Region's policies, and the approval of the Green-e Governance Board.

¹³ Examples might include emissions trading schemes, cap-and-trade policies, or direct regulation of emissions, which are legally binding through voluntary agreement, law or regulation.

B. Regulatory Surplus: Renewable Quotas, Targets, Other Mandates and Incentives

Green-e certified Renewable Energy Products must be sourced from generators and generation that are not counted for, or attributed to, a requirement or mandate associated with specific policy or program mechanisms covering the power sector. Details on interactions with a Region's particular policy mechanisms are provided in the Regional Standard.

Examples of circumstances that cause a generator or generation to be ineligible include, but are not limited to:

1. Construction of the generator was required by law or the result of a legal settlement.
2. A renewable electricity quota system (e.g. Renewable Portfolio Standard) counts the generation or capacity toward the quota.
3. Electricity rates, electricity tariffs, financial incentives or other incentives that require that the renewable electricity (or associated certificates or attributes) be used or counted towards a governmental program that is meant to increase all consumers' use of renewable electricity.

So long as there is no conflict with 1. – 3. above, generation may be eligible when it is:

- In excess of a government mandate or quota; or
- From generators that obtain tax or financial incentive payments for construction or generation (as opposed to renewable electricity use or sale); or
- Counted toward a non-binding national, regional, or local renewable energy goal, including a production- or capacity-based aspiration or goal associated with a program or policy.

See also Section V.D.3: Mandated Renewables in 100% Renewable Electricity Products.

C. Double Counting, Double Selling, and Double Claiming

Eligible renewable electricity and any associated attributes can be applied to electricity end-use only once. Making a renewable electricity consumption claim is one example of a "use."¹⁴ Renewable electricity or attributes that can be reasonably attributed to a party other than the user of a certified Renewable Energy Product may not be used in Green-e certified Renewable Energy Products. Examples of prohibited double uses include, but are not limited to, when:

1. The same generation or attributes are sold to more than one party, or any case where another party has a conflicting contract for the attributes or the renewable electricity;

¹⁴ For further resources on double claims, see <https://resource-solutions.org/learn/rec-claims-and-ownership/>

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2. The same generation or attributes are claimed by more than one party, including any expressed or implied environmental claims made in relation to: electricity coming from a renewable electricity resource; environmental labeling; or disclosure requirements. This includes representing to consumers that the electricity from which attributes are derived is renewable (when the attributes are not also provided to the consumers);¹⁵
3. The same generation or attributes are used by an electricity service provider or other entity to meet a delivery or consumption mandate for renewable energy and is also used to supply certified sales, transactions, or consumption under Green-e (see Section IV.B); or
4. Another party uses one or more attributes of the renewable electricity (see Section IV.A). This includes when generation or associated attributes are sold as a Renewable Energy Product to one party, and when one or more attributes associated with the same generation (such as CO₂ reduction or offset) are sold to another party.

Green-e requires all Participants to notify all relevant government agency(ies) in writing, at least annually, of all generation used in Green-e certified Renewable Energy Products. A renewable energy tracking system or other infrastructure that already provides this information to the relevant agency(ies) may satisfy this requirement upon approval by the Green-e Governance Board.

D. Minimum Purchase Quantity

Green-e certified Renewable Energy Products sold to residential electricity consumers must contain at least the following minimum amounts of Green-e eligible renewable electricity / renewable energy attributes:

1. Renewable energy attributes sold without electricity service (e.g EAC Products): When sold on a one-time basis to a residential electricity consumer, the minimum allowable purchase quantity shall be the lower of 100 kilowatt-hours (kWh) or 10% of the average monthly residential electricity use in the Region.
2. Percentage-of-use electricity products: The minimum allowable amount is 25% of the customer's electricity usage. However, if a Participant offers an option for a residential consumer to purchase less than 50% of their electricity as certified renewable electricity, the Participant must also offer a 100% renewable electricity option to those consumers.
3. Electricity products sold in kWh blocks: The minimum block size must be set no lower than 10% of the average monthly residential electricity use in the Region.
4. Products sold as kilowatts of capacity from a facility or as shares of a facility: Each month, such Renewable Energy Products must deliver at least the same minimum amount as determined in III.D.3 above, averaged over a calendar year.

¹⁵ An example of such representations is using the renewable electricity in calculating product or portfolio resource mixes for the purposes of marketing or disclosure to electricity end-users when the attributes have been sold off or claimed separately.

Green-e certified Renewable Energy Products sold to non-residential electricity consumers have no minimum purchase quantity requirement. However, commercial purchasers interested in using the Green-e logo to promote their purchase must participate in the Green-e Marketplace Program, which does have quantity requirements: www.green-e.org/marketplace.

F. Criteria for the Non-Eligible Portion of a Renewable Electricity Product

This section contains additional requirements for electricity products that provide less than 100% of a customer's load with eligible renewable electricity.¹⁶ The portion of such products that is not composed of eligible renewable electricity must have average emission rates per kWh for SO₂, NO_x, and CO₂ that are equal to or less than the emission rates of the consumer's default electricity service. Emission rates of default service should be based on the most detailed and recent data provided by the relevant government-approved body that collects and publishes such data, unless one or more of the Region's transmission system administrators, utility oversight bodies or other authorities makes more up-to-date and accurate information available.

While any electricity that meets the above criteria will qualify, the following may explicitly be used to satisfy the non-eligible portion of a Green-e certified electricity product:

1. The system mix of the consumer's electricity service provider;¹⁷ or
2. The residual mix of the consumer's power pool or country.

The non-eligible portion of the product may not include nuclear power beyond what is contained in any system power purchase (i.e. may not include differentiated nuclear power).

V. Additional Criteria

A. Third Party Verification

Green-e requires that certified Renewable Energy Products undergo an annual verification process in order to substantiate related purchases, sales, and claims by the Participant. The Green-e Participant must employ an independent qualified auditor¹⁸ to conduct this verification in accordance with verification procedures supplied by Green-e. Such verification procedures

¹⁶ For example, an electricity product that provides 75% of the customer's electricity with Green-e certified renewables, and provides the remaining 25% of the customer's electricity with something other than Green-e certified renewables. The rules in this section govern this 25%, with the intent that this electricity has similar environmental impacts to what the customer would have received if they had not signed up for the 75% renewable electricity product.

¹⁷ This may also be called the 'default mix' or 'supplier mix' in some locations.

¹⁸ Auditor qualifications are specified in the verification rules for each Regional Standard.

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are developed after the Green-e Governance Board approves a Regional Standard and may vary by Region. The results of the verification and selected supporting documents must be made available to the Center for Resource Solutions and verification is not considered completed until all materials are submitted and accepted as complete and final by Green-e.

Participants must have data and document-tracking procedures adequate to prepare and provide verification materials to Green-e and auditors. Examples of the types of documents that are likely to be required include, but are not limited to:

1. Verification of generator eligibility.
2. Reports and/or documentation of all renewable attribute purchases.
3. Renewable energy tracking system reports.
4. Attestation documents signed by entities in the renewable electricity and/or attribute supply chain.
5. Data on generators and their output used in Green-e certified Renewable Energy Products, including generators owned by the Participant.
6. Documentation supporting any special cases or exceptions to generator or Renewable Energy Product eligibility.
7. Data on certified sales, including data on resource types and amounts provided to each customer type.
8. Prospective and historical data on the content of certified Renewable Energy Products.
9. Billing records and contracts for renewable electricity and attribute purchases and sales.
10. Internal reports and data related to renewable electricity and attribute purchases and sales.

All audit costs are the responsibility of the Green-e Participant undergoing verification.

B. Use of Renewable Energy Tracking Systems

In markets that use attribute certificates to transact renewable electricity, Green-e requires that a renewable energy tracking system (a database, typically electronic, designed to track generation and ownership of EACs) be used for all transactions and retirements of Green-e certified Renewable Energy Products. In markets without attribute certificates, the use of tracking systems is not required.

Each tracking system must be approved by Green-e and meet the following criteria:

1. Has sound contractual or legal frameworks to prevent the double issuance of EACs.
2. Publishes statistics (registered generators, issuing and retired volumes).
3. Publishes public lists of all registered generators with basic descriptive information, location, and human contact information, and of all registered account holders and contact information.

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4. Calculates a Residual Mix for the smaller of the Region or its geographical area of operation, or provides the relevant government agency(ies) and Green-e the data necessary to calculate a Residual Mix.
5. To avoid double counting with regional policies, the tracking system interacts in one of the following ways with the regional government agencies that oversee renewable energy policies, electricity resource disclosure and/or carbon accounting:
 - a. The tracking system is overseen by such agency(ies); or
 - b. The tracking system is required by such agencies for compliance with government mandates or policies; or
 - c. The tracking system is recognized by the government as a means to track EACs in the Region.
6. Has the ability to indicate that MWh are retired/cancelled/used for Green-e certified sales, for example through dedicated retirement account or a “retirement reason” field in the tracking system.
7. Issues certificates based on generation data supplied by the system operator(s) or other qualified entity(ies) that have access to the meter production or settlement data for each registered generator.
8. Is open to all market participants on a non-discriminatory basis.
9. At the time of generator registration, independently verify generator attributes and that the generator is not registered in any other renewable energy tracking systems (in some limited cases simultaneous registration in a carbon offset registry is permitted).
10. Requires that all the attributes of a MWh remain with the certificate and are not sold as a separate instrument or right of ownership.
11. Records at a minimum the following information for each tracked MWh, and can provide this to Participants and/or their auditors (additional information may be required depending on what information is available in the Region):
 - a. Generator name;
 - b. Unique generator ID assigned to the generator by the tracking system;
 - c. Generator ID, license number or permit number specific to the country in which it is built or to another government registry/database;
 - d. Resource/fuel type(s), in enough detail to demonstrate that the generator meets the requirements in Section II.A;
 - e. Generator location (street address and/or coordinates);
 - f. Generator owner or authorized agent, and contact information
 - g. Generator nameplate capacity;
 - h. Grid or transmission distribution company/entity to which the generator is connected;
 - i. Year generator first put electricity onto the grid (i.e. commercial online date);
 - j. Any other information that is needed to uniquely identify the generator;
 - k. Month and year of the generation date of each MWh produced;
 - l. Month and year of the certificate issuance date; and

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- m. Ownership (e.g., account holder) of each certificate at the time of certificate retirement/cancellation.

If a Region has access to a tracking system that does not meet all of the above criteria, that Regional Standard may still require the use of the tracking system, in which case the Regional Standard will include additional requirements in order to satisfy the intent of all criteria in the Framework.

If stakeholders present a compelling reason why it would be beneficial (e.g. for the renewable energy market or project development) that certain generator types or generation should not be required to use an eligible tracking system, the Green-e Governance Board may grant exceptions to the requirement to use eligible tracking systems in a particular Regional Standard.

C. Customer Disclosure

Green-e Participants must disclose product information, including the Regional Standard under which the Renewable Energy Product was certified, to each consumer prior to their purchase of the Renewable Energy Product. Participant must also make additional disclosures in the case that the Renewable Energy Product changes during the term of the purchase agreement with an affected customer. Details of required customer disclosure are contained in the Green-e Code of Conduct document that is applicable to a given Regional Standard.

D. Additional Requirements for Electricity Products

Regional Standards may be more restrictive than criteria 1-3 below if supported by stakeholder consultations and needed to achieve the intent of the Green-e program.

1. Regulatory Approval of Electricity Products

For certified renewable electricity products/programs/green tariffs offered by state-owned electricity providers, regulated electricity providers and electricity providers in electricity markets without retail competition: certification is only available to programs that have been approved, prior to the program's nomination for certification, by the appropriate regulatory or oversight body with jurisdiction over the program.

2. Pricing of Electricity Products

For electricity providers in electricity markets without retail competition: the "above-market" costs of the bundled renewable electricity or attributes used for a certified renewable electricity product shall be allocated only to customers of that program. If such costs are related to public policy initiatives that the electricity provider's regulators deem acceptable to be paid by all customers (not only by the customers of the certified program), the electricity provider may appeal to the Green-e Governance Board for approval of the electricity program.

3. Mandated Renewables in 100% Renewable Electricity Products

When a customer receives some amount of renewable electricity as a result of a mandate, law, regulation or policy, typically that renewable electricity is not eligible for use in a Green-e certified Renewable Energy Product (see Section IV.B). There is one exception to this rule, which can apply when:

1. The customer is receiving a certified electricity product for 100% of their electricity use from a Participant that is an electric service provider; and
2. The mandated renewables are provided to the customer by the same electric service provider; and
3. The renewable electricity applied to a mandate and delivered to the customer meets all of the relevant Green-e eligibility requirements in the applicable Regional Standard.

If all of these conditions are met, then the electric service provider may count the portion of Green-e eligible mandated renewables toward the certified electricity product that meets 100% of the customer's electricity use.¹⁹

Renewable electricity reported toward a renewable energy mandate or similar policy must be consistent across the load on which the policy's obligation calculations are based. Green-e requires a Participant subject to such policy to distribute the mandated renewables consistently across affected customers. Allocating all such renewables to one customer type or group of customers is not allowed, unless required by law or regulation.

VI. Governance and Framework Revisions

The Framework is reviewed every five years or more frequently as needed to accommodate changes in renewable electricity markets, policy changes that affect renewable energy, and/or innovations in renewable energy technology.

All revisions and calls for comments will be posted on the Green-e website (www.green-e.org). For any substantial changes to this Framework, Green-e commits that:

1. Stakeholders are solicited in advance of Green-e Governance Board meetings for input on substantive policy change issues; and
2. At least one year of notice (following the date of announcement of Board approval) is granted to Participants and other stakeholders before the substantive changes go into effect.

¹⁹ As a general principal, Green-e program participants offering a certified electricity product that meets 100% of a customer's load with renewable electricity are not required to provide the customer with Green-e eligible renewables for more than 100% of the customer's electricity load.

There may be exceptions made to the above two criteria if a more timely change is necessary to respond more immediately to market, policy or technology issues that would otherwise undermine the goals or requirements of Green-e certification. Such changes can be made by Green-e Governance Board decision.

Details of the standard setting process for this Framework and for Regional Standards, as well as how to submit comments or grievances, are available at: www.green-e.org/about/standard-setting

A. Governance

Details on governance of the Green-e program are available at: www.green-e.org/who. As of the date of publication of this Framework, all Green-e Regional Standards are reviewed and approved by the Green-e Governance Board, a group of volunteer renewable energy experts that represent the major stakeholder categories for the Green-e program. It is the intent of Green-e to develop governance and/or advisory bodies that support the creation and maintenance of Regional Standards for countries or large geographic areas over time.

B. Rule Changes Impacting Existing Contracts with Participants

Green-e Participants may petition Green-e for a waiver from specific changes in the criteria if they can document current contracts or other conditions that prevent them from complying with the change. The waiver must be communicated to the Participant's affected customers in a clear manner,²⁰ and CRS reserves the right to publicly announce that such Renewable Energy Products have been granted criteria exemptions on the Green-e website.

Changes that are not limiting to Green-e Participants (i.e. will impose no burden on currently certified Renewable Energy Products) or need to be implemented in the short term to accommodate external policy changes may take effect immediately upon Green-e Governance Board approval.

Any Green-e Participant that receives a waiver related to a specific generator or generation type must disclose the use of such a generator / generation on the Price, Terms, and Conditions and Product Content Label disclosures that are provided to consumers considering the purchase of the affected Renewable Energy Product. Renewable energy from such generators may be traded to other Green-e Participants for use in their own Green-e certified sales, so long as the original contract or generator ownership that was granted a waiver remains intact through the original period for which it was granted the waiver.

²⁰ For example: "25% of the renewable energy content of this product is supplied by facilities placed online prior to 2007"

Participants with contracts or generators that have been granted a waiver for continued use may transfer such contracts or ownership to other Green-e Participants and the original waiver will remain intact for the original period. If a Participant loses Green-e certification of all Renewable Energy Products for any reason, the waivers granted to generators based on that Participant's current contracts or ownership will be withdrawn as of the date that the Green-e certification is terminated. The Green-e Governance Board may approve alternate procedures in Regional Standards based on stakeholder feedback and to address regional market or regulatory requirements.

VII. Current Regional Standards Documents

All current Regional Standards documents are listed and available on the Green-e website at: [web page to be developed and included in final Framework]

VIII. How to Apply for Development of Regional Standards

Entities interested in offering or purchasing certified Renewable Energy Products in a Region not covered or included in an existing Regional Standard should review the application details on the Green-e website at: [web page to be developed and included in final Framework]

CRS's determination on whether to develop a Regional Standard will consider several factors. These can include whether the relevant regulatory and market infrastructure exist to support a consumer's choice for Renewable Energy Products; whether demand within the Region for such products exists; and whether there are sufficient technical support, stakeholder engagement, and resources available to support the development of the Regional Standard.