



Energy

Green-e® Renewable Electricity Standard for International Certification

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Table of Contents

I.	Introduction and Structure	3
A.	Definitions	4
B.	Use of the Standard	5
C.	Geographic Range of the Standard	6
D.	Structure of the Standard	6
II.	Eligible Product, Customer and Market Types	6
A.	Renewable Energy Product Types	6
B.	Renewable Energy Attribute Provider and Procurement Types	7
C.	Customer Type and Location	8
III.	Eligible Sources of Supply	8
A.	Renewable Resource Types	8
B.	Vintage of Eligible Renewable Generation	12
C.	Generator Age and “New Date”	12
1.	Generator “New Date” Requirements	12
2.	Exceptions to “New Date” Requirements	13
D.	Location of Eligible Generators	13
1.	Geographic Location	13
2.	Connection to the Grid	13
3.	Customer-Sited Generators	14
E.	Electricity Products that Combine EACs and Undifferentiated Electricity	14
F.	Emissions Limits	14
G.	Parasitic Load	15
IV.	Renewable Energy Product Specifications	15
A.	Fully Aggregated Renewable Energy Attributes	15
1.	Energy Attribute Certificates	15
2.	Emissions Trading Scheme/Cap-and-Trade Mechanisms for Greenhouse Gas Emissions	16
B.	Regulatory Surplus: Renewable Quotas, Targets, Other Mandates and Incentives	17
C.	Double Counting, Double Selling, and Double Claiming	17
D.	Electricity Products that Provide Less Than 100% Qualifying Renewable Electricity	18
V.	Additional Criteria	19
A.	Third Party Verification	19
B.	Use of Renewable Energy Tracking Systems	19
C.	Additional Requirements for Renewable Electricity Products	20
1.	Regulatory Approval of Electricity Products	20
2.	Pricing of Electricity Products	20
3.	Mandated Renewables in 100% Renewable Electricity Products	20
VI.	Governance and Standard Revisions	21
A.	Governance	21
B.	Rule Changes Impacting Existing Contracts with Participants	22
VII.	Market Appendices’ Availability and Development	22

I. Introduction and Structure

The Green-e® certification program promotes the use of high-quality renewable electricity¹ by providing environmental standards and consumer protection to support consumers' choices 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. The Green-e® program has supported consumers' choices to use renewable electricity since 1997, when the program was developed by the NGO Center for Resource Solutions ("CRS").

This Green-e® Renewable Electricity Standard for International Certification ("Standard") document provides criteria for Green-e® certification in selected electricity markets ("Markets"), which may be defined as one or more countries, a region or an electricity market. Users of this Standard in a particular Market are generators or providers of renewable electricity or renewable energy attributes from that Market, and electricity consumers who generate or directly purchase renewable electricity or attributes in that Market. Markets are ineligible under this Standard if they are included in a separate Regional Standard developed under the Green-e® Framework for Renewable Energy Certification.

A list of all approved Market Appendices, which contain further details of how this Standard is implemented and met in each approved Market, is available at: www.green-e.org/marketappendix². Market Appendices take into account country- and region-specific concerns.

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 and carbon 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.

¹ This Standard only applies to renewable electricity and its associated environmental attributes; it may not be used for non-electrical energy such as heat, or for energy efficiency, generation facility certification, or any other purpose.

² This page will be created later in the International standard development process.

A. Definitions

A glossary that defines many of the terms used throughout this Standard and other Green-e® program documents 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 Market Appendices identify which EAC can be used in that Market.

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 electricity purchase.

Market: The specific country, countries, contiguous geographic area, or electricity market where Green-e® certified Renewable Energy Products are intended to be offered under a Market Appendix. The boundaries of a Market 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. Market boundaries are determined by CRS and the Green-e® Governance Board with stakeholder input during the Market Appendix development process.

Market Appendix: A set of specifications for Green-e® certification against this Standard in a particular country or region. Market Appendices are available on the Green-e® website at www.green-e.org/marketappendix.

Participant: Entities providing or consuming Green-e® certified Renewable Energy Products (either to other entities or to themselves) are referred to as “Participants” in the Green-e® program throughout this Standard. Participants may be electricity generators, 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 Market Appendices are collectively referred to as “Renewable Energy Products” in this Standard. See Sections II.A and II.B for details of which product types are eligible. Renewable Energy Products include all renewable EAC Products and renewable electricity programs offered by an electricity service provider. Note that renewable EAC Products and renewable electricity programs / products are distinct and may be subject to different rules in the Standard and Market Appendices.

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 renewable EAC Products (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. Market verification rules will contain instructions on when to report sales and use.

B. Use of the Standard

The rules in the Standard and its Market Appendices are applicable to all eligible Renewable Energy Product types, customer types and approved Markets. A Market Appendix may contain criteria that are stricter than the minimum requirements contained in this Standard and/or add other criteria important for meeting the intent of the Green-e® program. In the event of any conflict between the English version of any Green-e® program document and a translated version, the English version shall prevail.

Parties interested in transacting a Green-e® certified Renewable Energy Product must first contact CRS to determine eligibility of individual renewable electricity or EAC transactions. For a transaction to be Green-e® certified, the interested party must sign a Green-e® logo use agreement with CRS before making any claims related to Green-e® certification.

Only individual transactions, PPAs or contracts are eligible for certification under this Standard, and such transactions must involve eligible generation from a region or an electricity market with a current Market Appendix.³

³ Unlike the Green-e® Energy Standard for the United States and Canada, this Standard does not allow Participants market a Green-e® certified Renewable Energy Product to any interested party as a standard offer.

C. Geographic Range of the Standard

Any country (or group of countries), geographic area, or electricity market is eligible for consideration under the Standard so long as all applicable rules can be met. CRS, which administers the Green-e® program, reserves the sole right to determine whether a renewable energy transaction in a particular Market can be certified and to determine the criteria by which Markets are selected for inclusion under this Standard.

D. Structure of the Standard

Criteria for Renewable Energy Product eligibility are contained in Sections II – V, which provide broad rules for certification. Each Market Appendix will contain any additional necessary details on how these rules are met, including any limitations and clarifications specific to that Market.

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

Market Appendices are available on the Green-e® website at www.green-e.org/marketappendix. Further details on Market Appendix availability and development are provided in Section VII.

II. Eligible Product, Customer and Market Types

A. Renewable Energy Product Types

In Markets where Energy Attribute Certificates are the means of owning, tracking and claiming renewable electricity use, such Energy Attribute Certificates must be included in all certified Renewable Energy Product types offered in that Market.

The following Renewable Energy Product types may be Green-e® certified, where legally available in the Market:

1. Energy Attribute Certificate Product: 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 Market. Examples of renewable EACs 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 supply contract. Examples include a voluntary renewable electricity rate offered by an electricity service provider to a large customer or renewable electricity power purchase agreements.

Section III.E addresses delivery of unbundled EACs with undifferentiated electricity and when that can be considered a Renewable Electricity Product.

B. Renewable Energy Attribute Provider and Procurement Types

Either the renewable electricity / EAC provider or the customer may sign up to certify the transaction as a participant in the Green-e® program.

An electricity user (see Section III.C below) 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.

1. Electric service providers, including:
 - a. incumbent/monopoly electricity service providers, such as a state-owned electricity provider or distribution utility
 - b. electricity service providers in a deregulated or competitive electricity market, where electricity users may choose their electricity service providers
2. Procurement of EACs separately from electricity service. Providers of such EACs may be electricity service providers also, or companies that provide EACs without electricity service.
3. Procurement of attributes directly from a generator that is not owned by the electricity user. Such procurement may take the form of:
 - a. Power Purchase Agreements (contracts directly between an electricity user and a generator or a generator operator) that include attributes. For example, contracts for differences, sleeved PPAs, and virtual PPAs.
 - b. Use of attributes from leased generation equipment that is installed on property owned by the electricity user.
 - c. Receipt of attributes from 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 fractional ownership or 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 attributes from an on-site generator that they own
 - b. The electricity user consuming attributes from a generator that they own that is located at a different location from where user is claiming the attributes, when there is a direct electrical connection between the user and the generator (sometimes called an “over the fence” arrangement or a “direct line” connection)

Each transaction / contract is separately certified. This Standard does not allow Participants to offer a standardized product to all interested customers. Multiple customers may be named in a certified product, and an individual product may be sourced from multiple generators. Identified generators and customers must be

established before certification and may only be changed after certification with CRS approval.

C. Customer Type and Location

Certified Renewable Energy Products may not be sold to residential electricity customers. Other consumer types may purchase certified Renewable Energy Products and may be program Participants as noted above. There is no minimum size for consumers or transactions, however this Standard and program fees are oriented toward larger consumers making certified purchases.

Regarding customer location, electricity consumers may claim to be using renewable electricity if they purchase a Renewable Energy Product that is generated in the Market of their electricity consumption and certified under this Standard using the Market Appendix that corresponds to the customer's consumption location. The Green-e® program does not endorse renewable electricity usage claims based on purchases of Renewable Energy Products generated outside of the consumer's Market of electricity use. However, the Green-e® program does not specifically prohibit sales that are certified under a Market Appendix from being sold to purchasers located outside of that Market.

III. Eligible Sources of Supply

The following criteria apply to all Green-e® certified Renewable Energy Products. In addition, Market Appendices specify any requirements related to the social and environmental impacts of projects in that Market.

A. Renewable Resource Types

Market Appendices will state which of the below types of renewable electricity⁴ resources are eligible to be used in Green-e® certified Renewable Energy Products in that Market; not all resources will be eligible in each Market. Market Appendices may require that certain generators or resource types, in particular hydropower and biomass, if included, be certified by an independent sustainability certification body that is relevant to the Market. Likewise, Market Appendices may alter or exclude any of the below criteria, based on local practices and issues, stakeholder feedback, or market development goals.

1. Solar, including photovoltaic and solar thermal electric
2. Wind
3. Geothermal
4. Ocean-based energy captured through tidal, wave, or ocean thermal energy conversion technologies, if located in an area with permitting processes specific

⁴ Energy sources other than electricity are not eligible (e.g. solar water heating or waste heat recovery from fossil fuel combustion).

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. not on an impoundment; or
 - b. generation capacity that was added to an impoundment that existed before the applicable New Date (see Section III.C); or
 - c. 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 electricity output due to efficiency upgrades for hydropower meeting one of criteria a. - c. above may be allowed and details would be provided in the relevant Market Appendix.

6. Solid, liquid, and gaseous forms of biomass must meet or exceed the criteria in items a. - g. below as applicable. In addition, a Market Appendix's inclusion of and definition of eligible biomass must be based on feedback from stakeholders, including local environmental stakeholders.⁵

The Green-e® program 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. The Green-e® program reserves the right to exclude biomass fuels from a Market Appendix 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 Standard or Market Appendix.

- 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 Market Appendix, 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 Market Appendix must address overall sustainability of the fuel, for example through 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:

⁵ 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. CRS staff will evaluate whether or not such additional documentation and certifications are adequate.

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 entity, 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 plantations⁶ that were established on land converted from any other forest after a date stated in the Market Appendix,⁷ and that the thinning improves the ecology, biodiversity, and ecosystem function of the forest and surrounding area
- b. Agricultural crop residue that is unmerchantable as food (or as animal feed). For the purposes of this Standard, a tree is not an agricultural crop⁸
 - c. Animal waste, including manure and feathers⁹
 - d. Other solid, liquid, or gaseous organic waste including biogas created from food waste (e.g. municipal composting facilities) and food and beverage

⁶ Plantation is defined as: A stand of trees maintained by planting or artificial seeding, grown for the purpose of harvest.

⁷ 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.

⁸ 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.

⁹ 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 is eligible under this Standard 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. CRS staff reserve the right to request offset calculation methodologies of such projects.

processing waste. Organic waste can include waste and residues of biological origin from agriculture (including vegetal and animal substances not covered in III.A.6.c above), and forestry and related industries where not otherwise expressly prohibited in a Market Appendix.

- e. 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
 - f. Landfill gas and wastewater methane¹⁰
 - g. Waste-to-energy (WTE) technologies that use biogenic resources described above and that are mature in the Market. Where WTE is allowed, the Market Appendix will include any additional requirements to address the environmental impacts of WTE technologies.
 - i. Unsorted municipal solid waste is specifically excluded from eligibility WTE technologies¹¹
 - h. The following biogenic resources are excluded from eligibility in all cases:
 - i. resources directly related to palm oil production (e.g. palm oil, oil palm residues and other 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 have an energy and carbon balance that is demonstrably favorable. Market Appendices may include additional biofuels verification or certification requirements.

All feedstocks must qualify under the criteria listed under Section III.A.6 above. Biofuels 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 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:

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

¹⁰ Such gases that are used to generate electricity are 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.

¹¹ 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.

- a. Such eligible hydrogen may also be used to generate electricity in other ways, which would be detailed in a Market Appendix if allowed.

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.¹² If there are laws in a Market 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 required in a Market Appendix.

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 2025 is 2011, the New Date for Reporting Year 2026 is 2012, and so on.

CRS may, at its discretion, define a different New Date in a Market Appendix, for example based on the percentage of electricity from renewable resources in the Market, or the date that voluntary renewable energy purchasing became available.

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 first 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
- 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 Market Appendix

¹² For multi-year contracts for renewable EAC Products, the Reporting Year may be treated as the calendar year in which an amount of EACs is being claimed for consumption. In this case, that amount of EACs must be included that Reporting Year’s annual verification submission to CRS. All EACs promised under a multi-year contract may not be included in a single Reporting Year’s verification submission.

- 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 Market Appendix

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 at the time of signing.

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 applicable Market.

However, the following two rules may be applied to a Market Appendix at CRS's discretion:

- a. Generators located outside of the Market may be allowed as eligible if there are compelling regional circumstances.
- b. Market Appendices may define electricity-sourcing boundaries that are more geographically constrained—for example, limiting electricity sourcing to certain sub-Markets and requiring that customers be served by electricity generated in their same sub-Market.

2. Connection to the Grid

In all but one specific case outlined below, all generators must be grid connected to be eligible under this Standard.

- 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, including when the customer is not connected to the grid (see also Section III.D.3.b.iii immediately above)
- b. Certified Renewable Energy Products sold to off-site electricity users. The following types of generation from customer-sited generators can be eligible, and may be treated differently in a given Market Appendix:
 - 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:
 - iii. the affected country; or
 - iv. the Market.
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 EAC product or the Participant must purchase both the electricity and attributes 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 Market.

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 Market'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, if allowed in the Market Appendix, a 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 any and all avoided CO₂ benefits.

Where it is not legally possible to include an attribute in a Renewable Energy Product, or the value of that attributes is zero,¹³ the Market Appendix may establish that the inclusion of such an attribute is not required or that the attribute must be compensated for somehow. In this case, the Participant may need to disclose that the particular attribute is not included in Green-e® certified Renewable Energy Product, has a value of zero, or has been compensated for in a particular way. Any specific requirements related to claims and disclosures would be provided in the Market Appendix.

A renewable electricity generator creating carbon offsets and renewable electricity for the same electrical generation must retire an equivalent amount of its own carbon offsets from the same monitoring period (e.g. the same month if EACs are issued monthly) as the electricity generation in order for its EACs to be eligible.

1. Energy Attribute Certificates

Energy Attributes Certificates (or similar contractual instruments) must be included in a Green-e® certified Renewable Energy Product and retired / cancelled by or on behalf of the purchaser of the product, in all cases where that type of certificate is the basis for any of the following in the Market:

- a. to convey the attributes of specified renewable electricity generation; or
- b. to otherwise transact renewable electricity for delivery and usage claims/reporting; or

¹³ For example, if a Market 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. One example of this would be a greenhouse gas cap-and-trade program / emissions trading scheme where voluntary renewable energy sales do not reduce the level of the cap, resulting in zero avoided carbon emissions from renewable electricity generation.

- c. for compliance with a renewable energy mandate or target (when any or all attributes are used in this way).

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 Markets 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 used 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,¹⁴ 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.

For example, 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.

Market Appendices may allow Participant to not 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:

- a. Calculation of the cap; or
- b. The emission reduction baseline upon which emissions reduction requirements are based.

In other cases, and depending on the Market's policies and conditions, Participants may be required to make disclosures to potential and actual customers regarding any attributes that have a value of zero or that are not included in the Green-e® certified renewable Energy Product. Marketing guidelines for the affected Market will contain information on any such required disclosure. Requirements and disclosures may vary on a case-by-case basis, at the discretion of CRS.

If CRS deems that compensation for missing or zero-value attributes is necessary, the following actions, or others detailed in the Market Appendix, could be required:

¹⁴ 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. One example of this would be a greenhouse gas emissions trading scheme where voluntary renewable energy sales do not reduce the level of the cap.

- c. 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
- d. If specifically allowed in the Market Appendix, retire / cancel Green-e® Climate certified offsets.

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 Market's particular policy mechanisms are provided in the Market Appendix.

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 counts the generation or capacity toward the quota.
3. A feed-in-tariff ("FIT") policy where any electricity users that fund the FIT are not fully compensated for the sale of the EACs to other parties.
4. 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.

Conversely, generation or generators may be eligible if one of the following is true:

5. It is in excess of a government mandate or quota; or
6. The generator obtains tax or financial incentive payments for construction or generation (as opposed to renewable electricity use or sale); or
7. It is counted toward a non-binding national, regional, or local renewable energy goal, including a production-based or capacity-based aspiration or goal associated with a program or policy.

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."¹⁵ 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;

¹⁵ For further resources on double claims, see <https://resource-solutions.org/learn/rec-claims-and-ownership/>

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);¹⁶
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 are also used to supply Green-e® certified sales, transactions, or consumption (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.

The Green-e® program 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. Electricity Products that Provide Less Than 100% Qualifying Renewable Electricity

This section contains additional requirements for electricity products that provide less than 100% of a customer's load with eligible renewable electricity.¹⁷ 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 Market'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 Renewable Electricity Product:

1. The system mix of the consumer's electricity service provider;¹⁸ or
2. The residual mix of the consumer's power pool or country.

¹⁶ 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.

¹⁷ 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.

¹⁸ This may also be called the 'default mix' or 'supplier mix'.

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

The Green-e® program 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 auditor¹⁹ to conduct this verification in accordance with verification procedures supplied by CRS. Such verification procedures are specific to this Standard, and a Market Appendix may include additional information on verification of certified transactions in that Market. 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 CRS.

Participants must have data and document-tracking procedures adequate to prepare and provide verification materials to CRS 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 attribute chain of custody.
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 transactions, 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 attribute purchases and sales.
10. Internal reports and data related to renewable attribute purchases and sales.

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

B. Use of Renewable Energy Tracking Systems

The Green-e® program 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, except in the cases below:

¹⁹ Auditor qualifications are specified in the verification rules for each Market Appendix.

1. There is no CRS-approved tracking system available to the region. In order for markets without an approved tracking system to use this Standard, CRS would have to determine that an alternate form of attribute tracking and verification is available to and appropriate for that market; or
2. Upon approval from CRS, a Participant is consuming on-site generation from a generator it owns or from which it has contractually procured the EACs (even if there is no approved tracking system available to the market)

Each tracking system must be approved for use in a market by CRS based on the criteria in Section V.B of the Green-e® Framework for Renewable Energy Certification (“Framework”). If an available tracking system does not meet all of the Framework criteria, CRS may impose additional requirements on the tracking system or reject the use of that tracking system, at CRS’s sole discretion. Any additional requirements will be detailed in the Market Appendix.

C. Additional Requirements for Renewable Electricity Products

1. Regulatory Approval of Electricity Products

For certified renewable electricity products, renewable electricity programs, green tariffs etc., offered by state-owned electricity providers, regulated electricity providers and electricity providers in electricity markets without retail competition: certification is only available to such 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:

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

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.²⁰

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. Participants subject to such policy are required 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 Standard Revisions

The Standard 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 Standard:

- Stakeholders are solicited in advance of Green-e® Governance Board meetings for input on substantive policy change issues; and
- 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.

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 Standard and for Market Appendices, as well as how to submit comments or grievances, are available at: www.green-e.org/about/standard-setting

A. Governance

This Standard is reviewed and approved by the Green-e® Governance Board, a group of renewable energy experts that represent the major stakeholder categories for the Green-e® program. Details on governance of the Green-e® program are available at: www.green-e.org/who.

Market Appendices are developed by CRS staff with input from relevant outside parties and the Green-e® Governance Board as deemed necessary.

²⁰ 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.

B. Rule Changes Impacting Existing Contracts with Participants

Green-e® Participants may petition CRS 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. If granted, the waiver must be communicated to the Participant's affected customers in a clear manner,²¹ 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.

VII. Market Appendices' Availability and Development

All Markets approved under this Standard have Market Appendices available on the Green-e® website at www.green-e.org/marketappendix. This page also contains details on how to apply to have a new Market considered and a new Market Appendix developed.

CRS's determination on whether to develop a Market Appendix 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 Market for such products exists; and whether there are sufficient technical support, stakeholder engagement, and resources available to support the development of the Market Appendix.

²¹ For example: "25% of the renewable energy content of this product is supplied by facilities placed online prior to 2007."

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