
RE100 TECHNICAL CRITERIA

Date of publication: October 2022



VERSION CONTROL

Version	Revision date	Revision summary
1.0	27 April 2016	First public version
2.0	January 2018	Updates to the list of Technical Advisory Group members and formatting changes
3.0	22 March 2021	<p>Minor edits about reporting</p> <p>Additional information on third-party verification of consumption</p> <p>Updates to recognized renewable electricity technologies: additional specifications on biomass and hydropower</p> <p>Updates to recognized renewable electricity procurement types: two new types of passive procurement recognized</p> <p>Additional information on <i>making credible claims</i> (previously called 'Making Unique Claims')</p> <p>New reference to the external document <i>RE100 Market Boundary Criteria</i> document version May 2019</p> <p>Details on how to make claims for each procurement type have been moved to a table in the Annex</p> <p>New information on active vs. passive procurement of renewable electricity</p> <p>New text about the RE100 materiality threshold provisions, taken from the <i>materiality threshold</i> document of December 2019</p> <p>New information about maximizing impact</p> <p>Minor edits to the list of TAG members</p>
4.0	October 2022	<p>Updates to recognized renewable electricity technologies: additional specifications for sustainable hydropower</p> <p>Revisions to recognized renewable electricity procurement types</p> <p>Revisions to market boundary definitions in Europe</p> <p>Introduction of a commissioning or re-powering date limit for procurement of renewable electricity, with exemptions for certain procurement types and grandfathering of eligible contracts</p> <p>Formatting and structure changes for clarity</p> <p>New introduction</p> <p>Updates to the list of TAG members</p>

Table of contents

Section One: Definitions of terms	5
Section Two: Introduction	6
1. What are the RE100 technical criteria?	6
2. What are the RE100 technical criteria based on?	6
Section Three: Recognized renewable energy resources	7
Section Four: Recognized procurement types for renewable electricity	8
1. Self-generation from facilities owned by the company	9
2. Direct procurement (contracts with generators) 2.1 <i>Physical power purchase agreement (physical PPA)</i> 2.2 <i>Financial (virtual) power purchase agreement (financial/virtual PPA)</i>	9
3. Contracts with electricity suppliers 3.1 <i>Project-specific supply contract with electricity supplier</i> 3.2 <i>Retail supply contract with electricity supplier</i>	10
4. Unbundled procurement of energy attribute certificates (EACs)	11
5. Passive procurement 5.1 <i>Default delivered renewable electricity from the grid, supported by EACs</i> 5.2 <i>Default delivered renewable electricity from the grid in a market with at least a 95% renewable generation mix and where there is no mechanism for specifically allocating renewable electricity</i>	12
Section Five: Requirements for procurement	14
1. Credibility of claims	14
2. Impact in procurement of renewable electricity 2.1 <i>Impactful procurement</i> 2.2 <i>Commissioning or re-powering date limit, with exemptions and grandfathering</i>	14
Section Six: Additional provisions	17
1. Organizational boundaries for electricity consumption	17
2. Material consumption of electricity	17
3. Third-party verification of consumption of renewable electricity	18

Appendix A: Credible claims to use of renewable electricity	21
Appendix B: Market boundaries	25
Appendix C: Re-powering of projects	28
Appendix D: Commissioning or re-powering date limit worked examples	29
Appendix E: Select studies in identifying procurement types	31
Appendix F: Links with the GHG Protocol Corporate Standard	33
Appendix G: RE100 Technical Advisory Group (TAG) members	35
Appendix H: Additional resources and contact information	36

Section One: Definitions of terms

Renewable generator	<i>An entity that owns or operates renewable electricity generation projects.</i>
Project, or facility	<i>The physical plant generating electricity.</i>
Generation	<i>The electricity generated by a project, or facility.</i>
Corporate buyer	<i>An entity that is procuring renewable electricity for its operations and may be seeking to make claims to its use. RE100 member companies are corporate buyers.</i>
Supplier, or utility	<i>An entity that supplies electricity to corporate buyers.</i>
Energy attributes	<p><i>The physical characteristics and the environmental benefits of electricity generation determined by those physical characteristics. Energy attributes include, but are not limited to:</i></p> <ul style="list-style-type: none"> • <i>Static information about the generation (technology type, nameplate capacity, location, commissioning date, project name, etc.).</i> • <i>The released CO2e emissions associated with the generation.</i> • <i>The time and date (vintage, or sometimes a timestamp) of generation.</i>
Energy attribute certificates (EACs)	<i>Standardized, tradable instruments issued to a unit of generation (generally, one MWh) which are used to aggregate and track energy attributes. Depending on the system that issues them and the market where they are used, corporate buyers may purchase them bundled with or unbundled from the underlying generation to secure the property rights to energy attributes. EACs are often interchangeably referred to as Renewable Energy Certificates (RECs).</i>
Bundled procurement	<i>When energy and energy attributes are procured together, in the same transaction.</i>
Unbundled procurement	<i>When energy and energy attributes are procured separately, in different transactions.</i>
Project-specific procurement	<i>Procurement from specified projects. Project-specific supplies always have complete transparency regarding the energy attributes in those supplies. The projects procured from throughout the term of a project-specific contract are stipulated in the contract. Project-specific supplies typically use longer contract lengths.</i>
Retail procurement	<i>Procurement of an ‘off-the-shelf’, standardized renewable electricity product. Project-specificity is not a requirement for retail procurement. The supplier of a retail supply may vary the projects used in the supply over the term of the contract. Retail supplies typically have less transparency regarding the energy attributes in those supplies and use shorter contract lengths.</i>

Section Two: Introduction

1 What are the RE100 technical criteria?

The RE100 technical criteria are the rules that member companies of the RE100 campaign observe when procuring renewable electricity and defining their progress towards their RE100 targets. The technical criteria may also be used by any corporate buyer as a guide for procurement of renewable electricity and making claims to its use.

The RE100 technical criteria exist in the absence of a consistent global framework that:

- Defines which energy resources are renewable;
- Defines requirements for credible claims to use of renewable electricity, including specific market boundaries;
- Outlines appropriate boundaries for organization-wide targets on electricity consumption;
- Defines material consumption of electricity in the pursuit of these targets;
- Calls for third-party verification of consumption of renewable electricity; and
- Specifies impact in procurement of renewable electricity.

Renewable electricity markets are dynamic and vary country by country. To reflect this, RE100 may introduce electricity accounting and reporting rules, provide regional or national context, and provide further briefings on emerging best practice.

The RE100 technical criteria are set by the RE100 Technical Advisory Group (TAG) in consultation with member companies, other stakeholders, and with the approval of the RE100 Project Board. A list of TAG members is given in Appendix G. The TAG contributes to the development of the technical criteria, but the entirety of the technical criteria may not reflect each TAG member's views.

The technical criteria may be periodically revised for RE100 to maintain its mission as a global leadership initiative of corporate buyers accelerating the transition to carbon-free grids by 2040. The technical criteria do not exist purely as a reporting standard for corporate claims to use of renewable electricity, but as the principles for corporate buyers to themselves contribute to the decarbonization of grids through their direct actions, and through the signals to markets and policymakers that their actions send.

2 What are the RE100 technical criteria based on?

The technical criteria are **mostly** an interpretation of the GHG Protocol Corporate Standard market-based scope 2 accounting guidance. They apply principles for market-based greenhouse gas emissions claims to renewable electricity usage claims by recognizing that both types of claims are made possible by the same market-based instruments.

The technical criteria, **in almost all cases**, require a market-based instrument which gives a corporate buyer making a claim to use of renewable electricity the property rights to renewable electricity attributes. The procurement types recognized by the technical criteria, **in almost all cases**, are categorizations of different contractual arrangements which convey these attributes to corporate buyers.

Please see Appendix F for more information around the relationship between the technical criteria and the GHG Protocol Corporate Standard.

Section Three: Recognized renewable energy resources

RE100 considers electricity generated from the following energy resources to be renewable:

- Wind;
- Solar;
- Geothermal;
- Sustainably sourced biomass (including biogas); and
- Sustainable hydropower.

RE100 does not include hydrogen in this list because hydrogen is not an energy resource. Rather, it is an energy carrier which is manufactured, and has an underlying energy resource as an input. Hydrogen is therefore only renewable if the energy resource used in its manufacture is renewable. Similarly, RE100 does not include energy storage in this list because energy storage is not an energy resource.

Renewable electricity from biomass and hydropower can play a role in decarbonization provided it is generated sustainably. RE100 **only** recognizes renewable electricity generated from biomass and hydropower that is also sustainable. RE100 recommends that this sustainability is proven through **third-party certification**.

A non-exhaustive list of standards providing such certification includes:

- ISO 13065:2015 (specifies principles, criteria, and indicators for the bioenergy supply chain to facilitate assessment of environmental, social and economic aspects of sustainability)
- The Green-e® Renewable Energy Standard for Canada and the United States
- The Low Impact Hydropower Institute (LIHI)
- The Hydropower Sustainability Council's Hydropower Sustainability Standard

The TAG will study the environmental and social sustainability of these technologies and may introduce related recommendations and criteria as consensus around best practices develop.

Section Four: Recognized procurement types for renewable electricity

RE100 categorizes corporate procurement of renewable electricity into five broad types. They differ in terms of the party being contracted with (directly with a generator or through a more conventional contract with an electricity supplier), whether the procurement of energy and energy attributes is bundled or unbundled, and active versus passive procurement.

1 Self-generation from facilities owned by the company

2 Direct procurement (contracts with generators)

2.1 Physical power purchase agreement (physical PPA)

2.2 Financial power purchase agreement (financial/virtual PPA)

3 Contracts with electricity suppliers

3.1 Project-specific supply contract with electricity supplier

3.2 Retail supply contract with electricity supplier

4 Unbundled procurement of energy attribute certificates (EACs)

5 Passive procurement

5.1 Default delivered renewable electricity from the grid, supported by EACs

5.2 Default delivered renewable electricity from the grid in a market with at least a 95% renewable generation mix and where there is no mechanism for specifically allocating renewable electricity

1 Self-generation from facilities owned by the company

Corporate buyers can own their own projects. Projects might be on-site or off-site, on the grid, or entirely off-grid. Corporate buyers must retain energy attributes to claim use of renewable electricity. This means corporate buyers can consume directly from their projects, retain the attributes, and claim use of renewable electricity. It also means corporate buyers can sell energy to the grid, retain the attributes, and claim use of renewable electricity.

The generation may be issued with energy attribute certificates (EACs), which corporate buyers can use to claim use of renewable electricity. The generation may be required to receive EACs. If EACs are not issued, corporate buyers must have contracts that give them credible claims (see Section Five: Credibility of claims) to support their claims to use of renewable electricity.

2 Direct procurement (contracts with generators)

Direct procurement describes procurement from, and contracting with, generators themselves. It includes two forms of power purchase agreements (PPAs).

2.1 Physical power purchase agreement (physical PPA)

A physical PPA is a contract between a corporate buyer and a generator for the supply of renewable electricity. A physical PPA can characterize purchases from on-site projects owned by third parties, off-site projects to which there is a direct line, or off-site grid-connected projects. A physical PPA typically uses a long-term contract.

Physical PPAs do not necessarily need to be bilateral between the corporate buyer and the generator. A bilateral PPA requires the corporate buyer to also take responsibility for the off-take of the power itself, including managing the moving and scheduling of the power to the corporate buyer's load, or into the wholesale power market (if the project is grid-connected). The corporate buyer may need to be licensed to be able to do this. Alternatively, a trilateral PPA can involve an additional party which is responsible for the off-take of the power from the project. This third party is often an electricity supplier. A trilateral PPA may be advertised as a 'retail PPA', 'sleeved PPA', or a 'third-party PPA'.

The generation may be issued with energy attribute certificates (EACs), which corporate buyers can use to claim use of renewable electricity. If EACs are not issued, corporate buyers must have contracts that give them credible claims (see Section Five: Credibility of claims) to support their claims to use of renewable electricity.

2.2 Financial power purchase agreement (financial/virtual PPA)

A financial PPA (often called a virtual PPA – VPPA) is a purely financial transaction in which a corporate buyer assumes market risk related to the sale of a generator's electricity and receives energy attributes. This can be done through a contract for difference, where the generator exchanges the risk of selling the project's generation to the wholesale market at a variable rate with a fixed-price cash flow agreed with the corporate buyer. The corporate buyer therefore off-takes market risk the generator would be exposed to by selling power at the fluctuating wholesale energy price, and in return is entitled to the energy attributes.

Because a financial PPA is only a financial instrument, the corporate buyer must still separately procure electricity for its operations. It is therefore a form of unbundled procurement. A financial PPA can serve as a hedge for fluctuating electricity costs, and some corporate buyers may realize a financial benefit from using them. A financial PPA typically uses a long-term contract.

The generation may be issued with energy attribute certificates (EACs), which corporate buyers can use to claim use of renewable electricity. If EACs are not issued, corporate buyers must have contracts that give them credible claims (see Section Five: Credibility of claims) to support their claims to use of renewable electricity.

3 Contracts with electricity suppliers

A contract with a supplier describes a conventional supply arrangement with an electricity supplier for the supply of renewable electricity. Energy and energy attributes are bundled together in their delivery to the corporate buyer.

RE100 recognizes two types of contracts with electricity suppliers: project-specific, and retail. Appendix E contains guiding questions for corporate buyers needing to identify whether a particular supply must be characterized as project-specific or retail.

3.1 Project-specific supply contract with electricity supplier

A project-specific contract with a supplier describes an arrangement whereby the supplier procures from specified projects on behalf of the corporate buyer. Often, the supplier holds a power purchase agreement. The contract may be advertised as a 'green tariff', has complete transparency regarding the energy attributes in the supply (meaning the corporate buyer always knows exactly which specific projects they are purchasing from through their electricity supplier), and typically uses a longer contract length.

The generation may be issued with EACs, which corporate buyers can use to claim use of renewable electricity. The supplier may transfer the EACs to corporate buyers or otherwise redeem, retire, or cancel them on behalf of corporate buyers. If EACs are not issued, corporate buyers must have contracts that give them credible claims (see Section Five: Credibility of claims) to support their claims to use of renewable electricity.

3.2 Retail supply contract with electricity supplier

A retail contract with a supplier describes an 'off-the-shelf' arrangement with an electricity supplier for the supply of renewable electricity. The corporate buyer usually pays a per-kilowatt hour premium through an additional line item on their monthly electricity bill for the renewable electricity. This contract may be advertised as a 'green electricity product', has less transparency regarding the energy attributes in the supply, and typically uses a shorter contract length. The supplier may vary the projects from which energy attributes are sourced throughout the contract.

The generation may be issued with EACs, which corporate buyers can use to claim use of renewable electricity. The supplier may transfer the EACs to corporate buyers or otherwise redeem, retire, or cancel them on behalf of corporate buyers. If EACs are not issued, corporate buyers must have contracts that give them credible claims (see Section Five: Credibility of claims) to support their claims to use of renewable electricity.

4 Unbundled procurement of energy attribute certificates (EACs)

Energy attribute certificates (EACs) can be purchased alone, separate from the underlying generation they are issued to, and separate from corporate buyers' procurement of electricity for their operations.

Corporate buyers can purchase EACs¹ to pair with their consumption of purchased grid electricity. This permits a claim to having consumed electricity with the attributes conveyed by the EACs². The EACs must be issued to generation located in the same market for electricity as the electricity supply being decarbonized by the corporate buyer³. A purchase of renewable electricity generated in one market cannot be equated to its consumption in a different market.

EACs can be procured through short or long-term contracts, with varying degrees of project-specificity. EACs are sometimes procured through brokers and trading platforms, making for transactions that are less complex than those in other procurement types.

Unbundled EACs can only ever present an additional cost on top of corporate buyers' separate electricity purchases. This is a key point of distinction between long-term contracts for unbundled EACs and financial PPAs, which can sometimes realize a financial benefit.

¹ The EACs purchased must be from EAC systems that enable credible claims. RE100 maintains a list of such EAC systems in its [frequently asked questions](#). However, EACs from any system can be purchased if their user understands the system to enable credible claims following a review of [the RE100 credible claims paper](#).

² **Unbundled EACs cannot be used to decarbonize electricity from a non-renewable project (e.g., a CHP system) when the project is owned by the company (therefore, the emissions from it are in scope 1), or when the project is on-site or when there is a direct line to the project (therefore, the electricity is not sourced from the grid).**

EACs are scope 2 instruments indicating renewable electricity has been generated and fed into the grid. Using them to decarbonize scope 1 emissions does not align with greenhouse gas emissions accounting practice. Similarly, it is inconsistent to claim that a purchase of EACs from renewable electricity which is fed into the grid can be matched with consumption of electricity from a source other than the grid. The electricity generated by CHP systems can **only** be considered renewable if the fuel used to generate the electricity is renewable. Either a physical supply of a renewable fuel or a purchase of an energy attribute certificate for a renewable fuel (for example, a biogas certificate) which observes relevant credibility principles (such as market boundaries) is necessary.

More information on this provision is available in [RE100's frequently asked questions](#).

³ See Appendix B for RE100's precise market boundary definitions.

5 Passive procurement

RE100 recognizes two types of passive procurement. The first is for corporate buyers with credible claims to passively delivered market-based instruments (EACs) which are in their default supplies. The second is for corporate buyers on highly renewable grids where no market-based instruments exist.

5.1 Default delivered renewable electricity from the grid, supported by EACs

This is the renewable electricity in the electricity utility/supplier mix that has not been voluntarily procured by corporate buyers but is delivered by default. Corporate buyers can claim use of default delivered renewable electricity if, and only if, an equivalent amount of EACs is retired by the utility/supplier. Corporate buyers wishing to claim use of this renewable electricity must seek relevant information from their utility/supplier to justify their claims.

Default supplies can include renewable electricity supplied under a compliance mandate. However, the existence alone of such a mandate is not justification for corporate buyers to claim use of renewable electricity. Corporate buyers must verify how their utilities/suppliers are complying with the mandate. In the United States, Renewable Portfolio Standards (RPS) require that a specified percentage of the electricity that utilities supply comes from renewable resources, and that utilities/suppliers retire Renewable Energy Certificates (RECs) on behalf of their customers for that percentage. In some cases, these programs allow for alternative compliance routes, multipliers, and other mechanisms that do not deliver renewable electricity to corporate buyers. Another example in Australia is the default supply of renewable electricity by utilities/suppliers retiring Large-scale Generation Certificates (LGCs) under the Renewable Energy Target (RET). Again, corporate buyers must verify that their utilities/suppliers are retiring LGCs rather than using an alternative compliance route such as paying a shortfall charge. This procurement type is not applicable in most markets and corporate buyers wishing to use it must have evidence to support their claims.

For the avoidance of doubt, claims to default delivered renewable electricity, supported by EACs, require an absence of voluntary procurement of renewable electricity. Corporate buyers can only claim default delivered renewable electricity where they have a contract for a supplier's default supply. If a corporate buyer consumes 100 MWh, 60 MWh of which is supplied through a contract for renewable electricity, and 40 MWh of which is supplied through a default supply, the corporate buyer can only claim the default delivered renewable electricity, supported by EACs, present in the 40 MWh conveyed by the default supply⁴.

It is essential that claims to use of default delivered renewable electricity remain unique and exclusive. Some markets place RPS-type compliance mandates on utilities but allow those utilities to also sell that renewable electricity to voluntary corporate buyers actively procuring it (for example, through the Green Premium contracts available in the Republic of Korea). Therefore, the renewable electricity procured by utilities to meet their compliance mandate is not present in a default supply. Claims to default delivered renewable electricity cannot be made using compliance mandates on utilities as a justification in these instances.

⁴ <https://resource-solutions.org/wp-content/uploads/2021/03/Accounting-for-Standard-Delivery-Renewable-Energy.pdf>

5.2 Default delivered renewable electricity from the grid in a market with at least a 95% renewable generation mix and where there is no mechanism for specifically allocating renewable electricity

Corporate buyers can count all their electricity consumption from the grid as renewable in a market when the generation mix is over 95% renewable and when there is no mechanism for actively sourcing renewable electricity from the grid. This only applies when the **entire market's grid** is at or above this percentage. **This procurement type does not apply to regions within markets (for example, where one state or province is over 95%) and does not apply to electricity consumption from sources other than the grid.**

Other markets with a high percentage of renewables on the grid such as Norway and Iceland are not eligible for passive claims because they have mechanisms for specifically allocating renewable electricity to corporate buyers.

Passive claims are also not credible in markets that have a highly renewable domestic generation mix, but also import significant amounts of electricity, such as Nepal.

At present, RE100 has found that only Paraguay, Uruguay, and Ethiopia meet these criteria.

The list of countries where passive claims from the grid are recognized is subject to change as markets and grids evolve.

Section Five: Requirements for procurement

1 Credibility of claims

A credible claim to use of renewable electricity must be based on:

- Credible generation data⁵;
- Attribute aggregation⁵;
- Exclusive ownership (no double counting) of attributes⁵;
- Exclusive claims (no double claiming) on attributes⁵;
- Geographic market limitations of claims⁵; and
- Vintage limitations of claims. The period of generation used to claim use of renewable electricity must be reasonably close in time to the period over which a claim to use of renewable electricity is made. RE100 does not define 'reasonably close'⁵.

2 Impact in procurement of renewable electricity

RE100's aim is for corporate buyers to accelerate the transition to zero-carbon grids. Corporate buyers can contribute to this transition either directly, through the actions they take to add new renewable electricity capacity, and/or indirectly, through the signals they send to markets and policymakers with their demand for voluntarily procured renewable electricity.

2.1 Impactful procurement

RE100 holds that self-generation or procurement from new projects through long-term, direct, or project-specific contracts, are central to corporate buyers themselves driving the transition to zero-carbon grids. Where corporate buyers make one-time purchases of unbundled EACs, they can make a preference on location, technology, project, or timing to increase the impact of these purchases.

Additional, voluntary labels can be sought for EACs which might, for example, guarantee that the EACs are from recently commissioned projects. A non-exhaustive list of these labels includes the Green-e®, EKOenergy®, and Gold Standard® labels. They can strengthen the impact and credibility of any procurement type that conveys EACs.

RE100 recognizes that impactful procurement is not always possible in all markets. Corporate buyers should engage with suppliers and policymakers to remove barriers to impactful procurement and otherwise procure renewable electricity with the highest impact possible where they operate.

⁵ Appendix A discusses each feature more broadly. Appendix B outlines RE100's precise market boundary definitions. The [RE100 credible claims paper](#) also exists as a standalone document corporate buyers can use as an aid in their procurement and in making claims.

2.2 Commissioning or re-powering date limit, with exemptions and grandfathering

The RE100 technical criteria require corporate buyers' procurement of renewable electricity to observe a fifteen-year⁶ commissioning or re-powering⁷ date limit, or to be one of the following:

- Self-generation (procurement type 1)
- Physical power purchase agreements with on-site projects or off-site projects to which there is a direct line with no grid transfers (a subset of procurement type 2.1)
- Long-term project-specific contracts the corporate buyer has entered into **as the original off-taker from the project(s)**, and extensions of those contracts, **even if they exceed fifteen years in length**, including:
 - Physical power purchase agreements with off-site grid-connected projects (a subset of procurement type 2.1)
 - Financial power purchase agreements (procurement type 2.2)
 - Project-specific contracts with electricity suppliers (procurement type 3.1)
 - Project-specific contracts for unbundled EACs (a subset of procurement type 4)
- Claims to default delivered renewable electricity (procurement types 5.1 and 5.2)
- Grandfathered contracts with operational commencement dates before **1 January 2024**

Corporate buyers may exempt procurement of renewable electricity up to a threshold of 15% of their total electricity consumption from the requirements above.

In other words, if a corporate buyer is only procuring 15% renewable electricity, no procurement is subject to a commissioning or re-powering date limit. A corporate buyer procuring 50% renewable electricity may exempt 15% (in terms of its total consumption) and must subject the remainder of its procurement of renewable electricity (35% of its total consumption) to the requirements above. A corporate buyer procuring 100% renewable electricity may exempt 15% of its procurement and must subject the remainder of its procurement (85% of its total consumption) to the requirements above⁸.

The RE100 technical criteria do not recognize additional procurement of renewable electricity from projects commissioned or re-powered more than fifteen years ago beyond the 15% threshold.

These requirements for impactful procurement apply to corporate buyers' global procurement. Corporate buyers may choose in which markets to use the procurement types subject to the 15% threshold. RE100 recommends that corporate buyers voluntarily phase-out their use of the 15% threshold as quickly as possible.

⁶ 'Fifteen years' is defined as on or after 1 January of the year fifteen years prior to the claim to use of renewable electricity. For example, a claim to use of renewable electricity over January-December 2025 must be based on procurement from projects commissioned or re-powered on or after 1 January 2010.

⁷ See Appendix C for RE100's guidance on re-powering of projects.

⁸ See Appendix D for an illustration of how this rule impacts corporate buyers procuring different amounts of renewable electricity.

2.2.1 *Entry into force*

Starting with the 2023 disclosure cycle, RE100 members will be required to disclose the commissioning or re-powering dates of the projects in their supplies of renewable electricity, including disclosure of an 'unknown' date where the information is not available.

Each RE100 member will be assessed against the fifteen-year commissioning or re-powering date limit when they submit their first disclosures to RE100 that cover twelve months starting on or after 1 January 2024. In each disclosure cycle, the most common reporting period selected by RE100 members is January to December of the previous year. Therefore, it is expected that members reporting on their procurement for 1 January to 31 December 2024 in the 2025 disclosure cycle will first have their adherence to the fifteen-year commissioning or re-powering date limit assessed in the 2025 annual disclosure report, published in January 2026.

The RE100 technical criteria are reviewed and updated every two years. If compelling, data-supported reasons arise showing that changing the criteria is required for market growth and sustainability, they will be considered during the review cycle.

2.2.2 *Approaches to reporting on commissioning or re-powering dates*

For some procurement, it can be difficult to establish precisely which projects renewable attributes are being sourced from. This may especially be the case with retail contracts with suppliers which have low transparency regarding the energy attributes in those supplies. Corporate buyers should insist that their suppliers improve the transparency of such products so that they can use commissioning or re-powering dates as a selection criterion when choosing which suppliers to contract with.

Some supplies may be transparent with respect to commissioning or re-powering dates, but include many projects (even when the supplies are project-specific). In these cases, it may be burdensome to individually report each project and the volume of renewable electricity procured from it. RE100 recommends its members report in as much detail as possible. Where members cannot or do not wish to disaggregate their reporting by commissioning or re-powering date, they must report the commissioning or re-powering date of the oldest project in a given supply.

If a commissioning or re-powering date is unknown or not reported, the procurement counts towards the 15% threshold which is exempt from a commissioning or re-powering date limit.

Section Six: Additional provisions

1 Organizational boundaries for electricity consumption

An organization-wide target to increase renewable electricity consumption must define a boundary for the organization's use of electricity. The RE100 technical criteria rely on greenhouse gas emissions accounting guidance for this definition.

An organization's electricity consumption is defined as the electricity consumption that underlies:

- All scope 2 emissions associated with purchased electricity; and
- All scope 1 emissions associated with the generation of electricity by the organization, for the organization's consumption (this excludes use of fossil fuels for transport, the production of heat, or other uses not involving electricity production).

The activities with emissions in the above scopes are identified following the application of a GHG boundary-setting approach. The GHG Protocol Corporate Standard provides guidance for:

- An operational control approach;
- A financial control approach; and
- An equity share approach.

Organizations must choose an emissions boundary-setting approach, either prescribed by the GHG Protocol or another, to identify the activities under their direct control and thus the underlying electricity consumption in the scope of an RE100 target.

2 Material consumption of electricity

RE100 members make a commitment to use 100% renewable electricity across their global operations. This requires them to act in every market they operate in. As a leadership initiative, RE100 can be unashamedly challenging for members.

Nevertheless, some members have small operations in some markets that have negligible impact on local demand. In markets where it is not technically feasible to source renewable electricity (for example, because the load is small or because of landlord-tenant issues), such loads can have a disproportionate impact on a member's ability to meet their RE100 target.

In recognition of this, RE100 has elected to set a maximum allowable threshold of electricity consumption that may be excluded from the RE100 target coverage.

RE100 member companies:

- Can exclude small loads (small offices, retail outlets, etc.) of up to 100 MWh/year⁹, per market, from the RE100 target boundary;
- Can claim exclusions¹⁰ up to 500 MWh/year (no more than 100 MWh/year per market); and
- Cannot make any exclusions in markets where it is technically feasible¹¹ to procure renewable electricity.

⁹ The size of the excludable load was determined using modelling of energy consumption for a small office, commercial building, or retail space as well as loads reported by RE100 members.

¹⁰ All claimed exclusions must still be reported to RE100 via the annual reporting process.

¹¹ RE100 does not define 'technically feasible' but recommends members consider [the list of countries where I-RECs are issued](#) as an indication of technical feasibility.

3 Third-party verification of consumption of renewable electricity

Consumption of renewable electricity must be verified by a third party. If renewable electricity is being self-generated, it may be necessary for generation of renewable electricity to also be verified. RE100 is not aware of any global standards for verifying consumption of renewable electricity. However, because the RE100 technical criteria are, in part, based on greenhouse gas accounting guidance, **RE100 considers a GHG auditor's report that verifies scope 1 and market-based scope 2 emissions to act as a proxy for a verification of consumption of renewable electricity**. This is because the instruments and evidence used to prepare a GHG inventory are, according to the RE100 technical criteria, the same instruments and evidence that are used to make credible claims to use of renewable electricity.

Appendix F discusses how the RE100 technical criteria link to the GHG Protocol Corporate Standard in more detail. In particular, links with the Scope 2 Quality Criteria are discussed, along with areas where the RE100 technical criteria deviate from GHG Protocol guidance (i.e., where RE100's recognized claims to use of renewable electricity and market-based scope 2 emissions claims do not align).

RE100 TECHNICAL CRITERIA APPENDICES

Date of publication: October 2022



VERSION CONTROL

Version	Revision date	Revision summary
1.0	October 2022	New release to the 2022 technical criteria update presenting clearer guidance

Appendix A: Credible claims to use of renewable electricity

A claim to use of renewable electricity must be unique and exclusive. Corporate buyers must be able to demonstrate that they have such claims. This means securing property rights to renewable electricity attributes. Energy attribute certificates are recommended as the best method for tracking and establishing ownership of energy attributes. However, it is possible for a contract alone to perform the same tracking function as EACs and ensure no other entity may claim use of the same renewable electricity.

The following six principles more completely define the features of a credible claim to use of renewable electricity:

- Credible generation data;
- Attribute aggregation;
- Exclusive ownership (no double counting) of attributes;
- Exclusive claims (no double claiming) on attributes;
- Geographic market limitations of claims¹; and
- Vintage limitations of claims. The period of generation used to claim use of renewable electricity must be reasonably close in time to the period over which a claim to use of renewable electricity is made. RE100 does not define 'reasonably close'.

These points are expanded on below and are also addressed in RE100's credible claims paper², which exists as a standalone reference document.

1 Credible generation data

Accurate generation data is critical as the basis for any renewable electricity usage claim. Static data (e.g., fuel type, location, date of first operation, etc.) should be third-party verified, a common practice of attribute tracking systems. Dynamic data (quantity of generation) is best when metered using a "revenue-grade meter" and independently used as the basis for determining the quantity of attributes and certificate issuance.

Companies should be cautious of making claims where static data cannot be verified by third parties and/or generation data is not metered.

2 Attribute aggregation

A renewable electricity usage claim is not supported by any individual attribute, but rather by all attributes that define the generation being claimed. Therefore, making a credible renewable electricity usage claim requires ownership of all environmental and social attributes associated with the generation that can be owned, and that none of these attributes have been sold off, transferred, or claimed elsewhere.

¹ See Appendix B for RE100's precise market boundary definitions

² <https://www.there100.org/technical-guidance>

The conditions of attribute aggregation vary by country and legal/regulatory framework for the electricity sector. Where a single multi-attribute instrument, such as a U.S. REC exists, assurance of all relevant attribute aggregation is simplified. If separate instruments have already been created for different attributes of power generation (e.g., carbon attributes), attribute aggregation can be achieved by bringing these instruments together – by demonstrating ownership and retirement of all instruments that make up a renewable electricity usage claim. Where there is not an existing market for renewable electricity, or where electricity is not typically differentiated, attribute aggregation may require engagement with local electricity suppliers. Companies should also take account of the in-country policy context of the generation (existing practices, policies, and legal frameworks that determine how electricity and renewable electricity is or can be transacted in different markets).

Where certain attributes (e.g. GHG emissions), cannot be owned or are equivalent to zero due to policy (e.g. the effect of a GHG cap-and-trade program on the avoided grid emissions attribute), and where attributes are not sold off separately, a renewable electricity usage claim may nevertheless be possible, provided that the renewable electricity purchaser owns all other generation attributes and that the remaining owned attributes are sufficient to define use of the resource according to market development, consumer expectation, and stakeholder feedback.

Companies should disclose any attributes that are not included in the instrument or transaction. In addition, different standards and certifications (e.g., Green-e) may have different or additional requirements for a “fully aggregated” instrument or group of instruments. Companies should also abide by any local laws and regulations pertaining to claims (e.g., the U.S. Federal Trade Commission’s “Green Guides” in the U.S.).

3 Exclusive ownership

Exclusive ownership of renewable attributes consists of legal enforceability, tracking (exclusive issuance, trading, and retirement), and exclusive sales and delivery.

3.1 Property rights

Legally enforceable contractual instruments must include “property rights” to environmental and renewable attributes of generation – that is, there must be a legally enforceable contract in place to back the exchange of attributes as property rights. Legal enforceability does not necessarily require governmental programs or legislation to create or recognize a market or energy attribute certificate, only that the mechanism for definition and conveyance/transfer of the attributes (e.g., contract, energy attribute certificate in a tracking system, etc.) is legally enforceable.

3.2 Tracking

Claims must be substantiated by attributes that have been reliably tracked from a generator to a consumer. Where attributes are transacted without energy attribute certificates, the transfer of attributes must be clearly articulated in a legally enforceable contract or series of contracts that link the generator to the end user, and claims must be based on the permanent end-use ownership or final use of those attributes, which also must be specified in a contract. Where energy attribute certificates are used, the certificates must be reliably tracked. This, again, can be done using contracts. However, the most sophisticated mechanism for tracking energy attribute certificates is an electronic attribute “tracking system”, in which certificates are electronically serialized and issued to generators with accounts on the system, tracked between account holders in the system where they are traded, and ultimately permanently retired or cancelled electronically by the entity making the claim or on behalf of an end-user making a claim. Attribute tracking systems provide exclusive issuance, trading, and retirement of attributes to markets for renewable electricity to support credible claims. Where tracking systems exist, transactions outside of the tracking system are usually limited to special cases (e.g., where participation in the tracking system is too costly for very small generation units).

While tracking systems have developed independently of each other in different jurisdictions around the globe, there are a few elements that all credible tracking systems have in common. These include:

- **Standardized certificate information:** Tracking systems issue certificates in MWh, and include the same basic information on each certificate:
 - Resource/fuel Type (e.g., wind, solar, etc.)
 - Serial ID
 - Generator ID
 - Generator Name
 - Generator Location
 - Vintage (date of generation)
 - Issuance Date
- **Certificates are issued for all renewable electricity generated by registered generators:** Certificates are issued to the renewable electricity generator. Some tracking systems require that certificates be issued for all production that is put onto the grid by registered generators. In others, such as those in Europe, registered generators have the right to request certificates issuance for selected production, in which case the attributes associated with production that is not issued certificates are allocated to the residual mix. In both cases, no energy attribute certificates from registered generators should be traded outside of the tracking system, in order to avoid potential double counting.
- **Defined geographical footprint:** To prevent double registration and issuance of certificates, tracking systems must be clear on the geographic boundaries within which generators have access to the tracking system, and ensure, through cooperation with other tracking systems, that generation facilities register in only one tracking system for certificate issuance.
- **Independence and transparency:** Independence and transparency of tracking systems help to maintain the integrity of the attribute market. Best practices include:
 - The tracking system operator does not act as a market player trading, selling or redeeming certificates;
 - Tracking systems should have transparent and non-discriminatory issuance criteria and operating rules;
 - Tracking system operators should follow defined procedures to identify and prevent conflicts of interest;
 - The tracking system should provide access to regulators and system auditors and allow for independent consumer claim verifications. To the extent possible, full disclosure of unit attributes and status should be made public;
 - Frequent independent third-party audit of the tracking system should be conducted by a credible and competent organization, verifying the factual static and dynamic data contained within the tracking system, and preferably made public;
 - The system should be open and accessible to new participants.

4 Exclusive claims

To the extent that tracking systems prevent double issuance and other forms of double counting, tracking systems alone will not necessarily ensure exclusive claims, i.e., that there are no other claims being made on either the attributes (including emissions) or electricity as renewable. Where energy attribute certificates can be sold separately from electricity, the electricity buyer does not have an exclusive renewable electricity use claim unless they own and retire the certificates, and likewise the certificate buyer does not have an exclusive usage claim where the electricity is also being claimed/reported as renewable or individual attributes are being claimed/transacted in another way. This requires that all renewable electricity instruments or instruments representing individual generation attributes (e.g., carbon offsets issued for renewable energy generation) have been retired by or on behalf of the same entity and that there are no other usage claims being made on the generation or attributes, for example, by the electricity supplier to meet a renewable electricity delivery target or in marketing that renewable electricity is being delivered to customers.

5 Geographic market boundaries

Attributes (and certificates) must be sourced and purchased from within the same defined geographic region that constitutes a “market” for the purpose of transacting and claiming attributes. Ideally this “market boundary” would be clearly defined, but in general it refers to an area in which the laws and regulatory framework governing the electricity sector are sufficiently consistent between the areas of production and consumption. As such, transactions that are both international and intercontinental are not usually appropriate unless there is physical interconnection (indicating a level of system-wide coordination between countries) and ideally if these countries’ utilities or energy suppliers recognize each other’s instruments. Within a single country or multiple countries in a common regulatory framework (e.g., U.S. and E.U. respectively), there may be multiple grid distribution regions where electricity is physically delivered. Because of the regulatory consistency, the geographic market for attributes is not necessarily constrained to the area in which it is possible to physically deliver electricity within the grid. There are advantages to larger market boundaries that allow consumers to source renewable electricity where it may be less expensive to create, while other programs or companies may prioritize sourcing from the same grid region as their consumption in order to support more local jobs or economic development.

Appendix B contains RE100’s definitions of market boundaries its members must observe.

6 Vintage limitations

To make a credible renewable electricity claim, the vintage of the attributes (and certificates) – that is, when the generation occurred – must be reasonably close to the reporting year of the electricity consumption to which it is applied. There is no official consensus on what is “reasonable” in this case, and it may vary between markets. Companies can refer to certification standards, claim verification and recognition programs, and/or GHG inventory reporting systems to ensure that the vintage of generation does not occur too far in advance or after consumption. This will also depend in part on the technical requirements of the tracking system and the market in which the consumer is active. Certain certification programs may enforce their own criteria for what is considered “reasonable”, such as Green-e’s requirement of a 21-month vintage eligibility window for certified sales of renewable electricity in a given year.

Appendix B: Market boundaries

1 What are markets for renewable electricity?

Claims to use of renewable electricity must be based on generation occurring in the same market for renewable electricity that use is claimed in.

A market for renewable electricity refers to an area in which:

- The laws and regulatory framework governing the electricity sector are consistent between the areas of production and consumption;
- Electricity grids are substantially interconnected, indicating a level of system-wide coordination; and
- Utilities/suppliers recognize each other's energy attributes and account for them in their trade of energy and energy attributes.

2 Markets for renewable electricity recognized by RE100

Except for the single markets described in the next section, **individual countries are distinct markets for renewable electricity.**

3 International single markets for renewable electricity recognized by RE100

3.1 The single market between the United States and Canada

The United States and Canada are considered to form a single market for renewable electricity.

3.2 The single market in Europe

Countries in Europe which meet **all** the following conditions are considered to form a single market for renewable electricity:

- The country is in the EU single market;
- The country is a member of the Association of Issuing Bodies (AIB) – issuing European Energy Certificate System (EECS) Guarantees of Origin; and
- The country has a grid connection to another country meeting the first two rules.

Exceptions have been made for countries or areas which have little domestic energy production and import much of their electricity (including renewable electricity attributes) from bordering countries which meet the above rules. The exempted countries or areas include the Channel Islands, Andorra, Liechtenstein, Monaco, San Marino, and Vatican City. In these countries or areas, corporate buyers must procure renewable electricity supported by EECS Guarantees of Origin and **cancel them ex-domain**³.

³ <https://www.aib-net.org/facts/market-information/statistics/ex-domain-cancellations>

The list of countries or areas which currently meet these rules is:

• Austria	• Luxembourg
• Belgium	• Netherlands
• Croatia	• Norway
• Czech Republic	• Portugal
• Denmark	• Slovakia
• Estonia	• Slovenia
• Finland	• Spain
• France	• Sweden
• Germany	• Switzerland
• Greece	• The Channel Islands ⁴
• Hungary	• Andorra ⁴
• Ireland	• Liechtenstein ⁴
• Italy	• Monaco ⁴
• Latvia	• San Marino ⁴
• Lithuania	• Vatican City ⁴

The following countries listed in RE100's note on market boundaries from 27 May 2019 are now individual markets for renewable electricity:

Country	Reason for exclusion
• Bulgaria	Bulgaria is not an AIB member
• Cyprus	Cyprus is not grid-connected to the single market for renewable electricity in Europe recognized by RE100
• Malta	Malta is not an AIB member
• Poland	Poland is not an AIB member
• Romania	Romania is not an AIB member
• Serbia	Serbia is not in the EU single market
• The United Kingdom	The United Kingdom is not in the EU single market and is not an AIB member

⁴ These countries or areas are included in RE100's view of the single market for electricity in Europe as exemptions because they have little domestic energy production and import much of their energy (including renewable electricity attributes) from bordering countries which meet the rules in Appendix B: 3.2.

3.2.1 *Entry into force*

Contracts with operational commencement dates before 1 January 2024 may observe the definitions of market boundaries adopted by RE100 in its note on market boundaries published 27 May 2019 (which includes the countries excluded above) or by CDP in its scope 2 technical note (which states that countries which are AIB members form a single market for electricity). All contracts with operational commencement dates starting 1 January 2024 and later must observe the updated market boundary definition.

Each RE100 member will be assessed against the updated market boundary definition when they submit their first disclosures to RE100 which cover twelve months starting on or after 1 January 2024. In each disclosure cycle, the most common reporting period selected by RE100 members is January to December of the previous year. Therefore, it is expected that members reporting on their procurement for January to December 2024 in the 2025 disclosure cycle will first have their adherence to the update market boundary definition studied in the 2025 annual disclosure report, published in January 2026.

Appendix C: Re-powering of projects⁵

RE100 considers projects which have met one of the following conditions in the last fifteen years⁶ as re-powered and which corporate buyers may procure renewable electricity from:

1. The facility has been re-powered such that 80 percent of the fair market value of the project stems from new generation equipment installed as part of the re-powering.
2. Eligible hydropower facility improvements that increase electrical energy output due to efficiency improvements may include:
 - Rewinding of existing turbine generator(s)
 - Replacement with new turbine generator(s)
 - New turbine generator additions to an existing impoundment

Improvements may not as a consequence increase the water storage capacity or the head of an existing water impoundment, or otherwise change the run of the river flow of the resource. Qualifying “new” incremental hydropower output will be credited using the following quantification and accounting criteria. The incremental generating capacity (in nameplate MW) is divided by the total uprated generating capacity (in nameplate MW) and then multiplied by generation output (in MWh) from the uprated generator. For example, if a hydroelectric power plant expands generating nameplate capacity from 100 MW to 125 MW and generation output increased to 1,000 MWh, then 200 MWh $((25 \text{ MW}/125 \text{ MW}) * 1,000 \text{ MWh})$ would be eligible for use by corporate buyers, regardless of the overall level of generation of the project during the period. Note that the overall generation from the uprated hydroelectric power plant may be higher or lower than generation levels that occurred at the plant prior to the capacity uprate.

To verify the “new” incremental output, RE100 reserves the right to request that corporate buyers present an independent third-party report demonstrating that the increased annual output of electrical energy is a result of the “new” incremental improvements.

Improvements that increase electrical energy output due to routine maintenance (i.e., output would be increased compared to original design) do not count.

3. A separable improvement to or a complete improvement of an existing operating facility provides incremental generation that is separately metered from the existing generation at the facility.

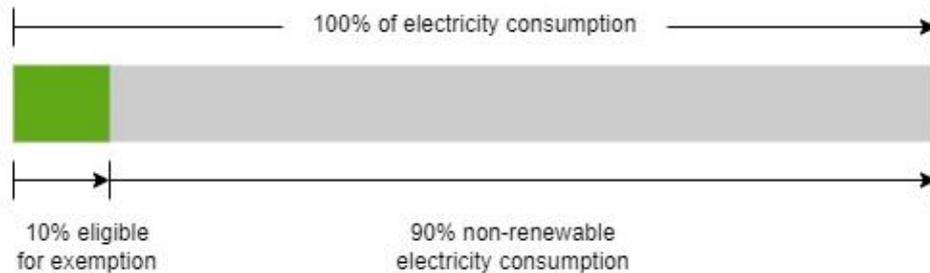
⁵ RE100 re-powering guidance is adapted from the United States Environmental Protection Agency (EPA) Green Power Partnership's (GPP) guidance: https://www.epa.gov/sites/default/files/2016-01/documents/gpp_partnership_reqs.pdf#page=10

⁶ ‘Fifteen years’ is defined as on or after 1 January of the year fifteen years prior to the claim of use of renewable electricity. For example, a claim to use of renewable electricity over January-December 2025 must be based on procurement from projects commissioned or re-powered on or after 1 January 2010.

Appendix D: Commissioning or re-powering date limit worked examples

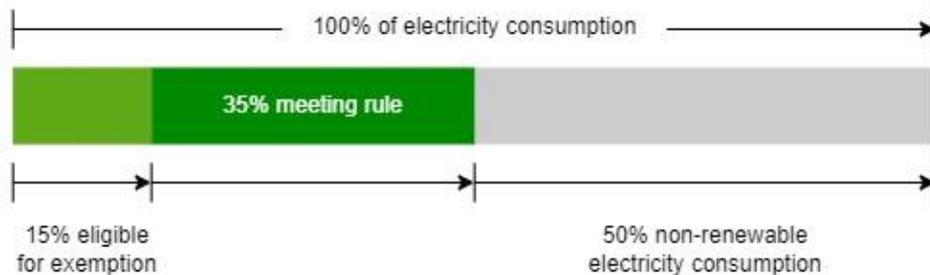
These diagrams illustrate how corporate buyers with otherwise credible claims to use of renewable electricity may or may not have their claims recognized as progress towards their RE100 targets.

Corporate buyer consuming 10% renewable electricity



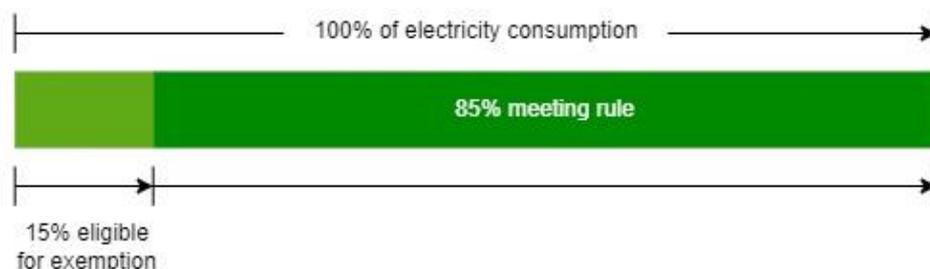
In this example, a corporate buyer has a credible claim to be consuming 10% renewable electricity. None of this consumption is subject to the requirements in Section 5: 2.2, and so the entire 10% contributes progress towards the corporate buyer's RE100 target.

Corporate buyer consuming 50% renewable electricity



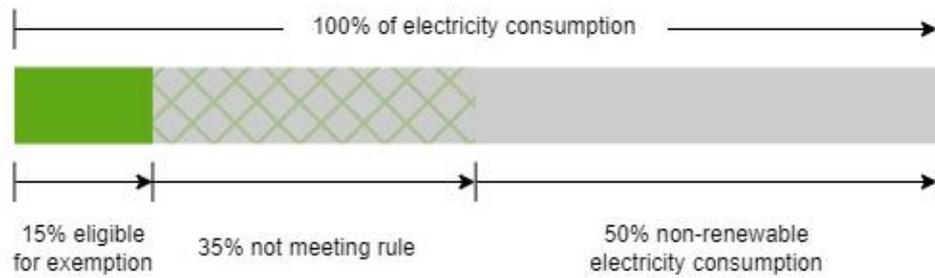
In this example, a corporate buyer has a credible claim to be consuming 50% renewable electricity. It exempts procurement of renewable electricity amounting to 15% of its total consumption from the requirements in Section 5: 2.2. It also subjects procurement of renewable electricity amounting to 35% of its total consumption to the requirements. Therefore, the entire 50% contributes progress towards the corporate buyer's RE100 target.

Corporate buyer consuming 100% renewable electricity



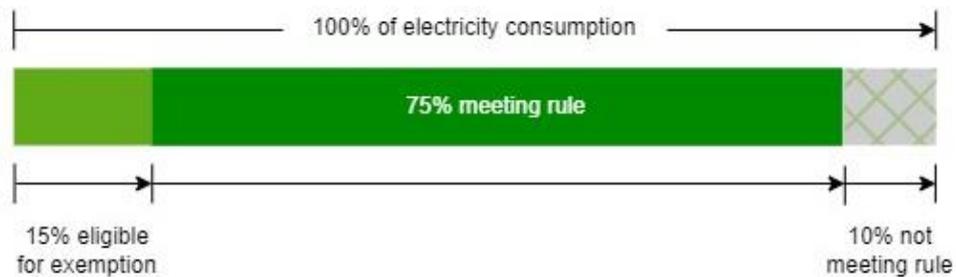
In this example, a corporate buyer has a credible claim to be consuming 100% renewable electricity. It exempts 15% from the requirements in Section 5: 2.2, and subjects the remainder to the requirements. Therefore, the entire 100% is recognized by the RE100 technical criteria, and the corporate buyer has met its RE100 target.

Corporate buyer consuming 50% renewable electricity



In this example, a corporate buyer has a credible claim to be consuming 50% renewable electricity. It does not subject any of its procurement to the requirements in Section 5: 2.2 (in other words, it procures from projects commissioned or re-powered more than fifteen years ago through contracts with operational commencement dates on or after 1 January 2024). Therefore, only 15% contributes progress towards the corporate buyer's RE100 target since it is exempt from the requirements. The remaining 35% is not recognized as progress towards the RE100 target.

Corporate buyer consuming 100% renewable electricity



In this example, a corporate buyer has a credible claim to be consuming 100% renewable electricity. It exempts 15% from the requirements in Section 5: 2.2, but only subjects 75% to the requirements (in other words, it procures the 25% from projects commissioned or re-powered more than fifteen years ago through contracts with operational commencement dates on or after 1 January 2024). Therefore, the final 10% is not recognized as progress towards the corporate buyer's RE100 target.

Appendix E: Select studies in identifying procurement types

1 Project-specific versus retail supply contracts for renewable electricity

The following questions aid in identifying whether a given contract with a supplier must be characterized as 'retail' and not as 'project-specific'.

- Is it known exactly which projects are used in the supply at all times?

If the answer to this question is 'no', the supply is not project-specific and must be characterized as a retail supply of renewable electricity.

- Can the supplier vary the projects used in the supply without the corporate buyer's consent, or is the variation of the projects used in the supply not an explicit clause in the supply contract?

If the answer to this question is 'yes', the supply is not project-specific and must be characterized as a retail supply of renewable electricity.

2 EAC arbitrage

2.1 What is EAC arbitrage?

EAC arbitrage describes swapping EACs for other EACs, often for the purpose of reducing renewable electricity procurement costs⁷. A corporate buyer holding a PPA with a new project may receive a supply of EACs with a high market value. The corporate buyer may exchange these EACs for cheaper EACs (from older or less desirable projects). The corporate buyer still off-takes the market risk from (and therefore supports) the new project and may realize a financial benefit by trading the EACs from the new project.

2.2 What procurement types must be reported when EAC arbitrage is happening?

EAC arbitrage takes away the corporate buyer's ability to claim it has used renewable electricity with the new generator's attributes. The corporate buyer can only claim to have used renewable electricity with the attributes conveyed by the lower-value EACs it has acquired.

The corporate buyer can report procuring attributes from a new generator through a PPA to convey a potential *support* claim for new renewable electricity capacity but cannot make *use* claims with those attributes. **In reporting to RE100, if member companies report arbitrated PPAs as PPAs, they must note in a comment where they have arbitrated their PPAs with an unbundled EAC purchase and include details of the replacement EACs.** In this way, claims to have *supported* renewable electricity generation and to have *used* renewable electricity generation are separate and distinct.

Reporting to RE100 has not previously identified where PPAs are arbitrated, or where unbundled EAC purchases result from arbitrated PPAs. RE100 will consider evolving its reporting infrastructure in the future to better study EAC arbitrage if the practice is understood to be associated with a significant amount of corporate procurement of renewable electricity.

⁷ <https://www.epa.gov/sites/default/files/2017-09/documents/gpp-rec-arbitrage.pdf>

3 M2L contracts in China

Large energy consumers in China currently procure in mid-to-long-term (M2L) markets from electricity exchanges⁸. They can procure from specific projects on the exchanges.

Corporate buyers sourcing renewable electricity through M2L contracts are not contracting with generators themselves. They must report their procurement as project-specific contracts with electricity suppliers. The procurement must not be reported as a form of power purchase agreement, because there is no direct contracting with generators.

4 Long term EAC contracts in the Republic of Korea and Japan

The Republic of Korea and Japan both offer long-term unbundled EAC contracts from new projects. The contracts may be advertised as financial (virtual) power purchase agreements. However, the contracts do not involve contract-for-difference mechanisms which allow for the off-take of market risk by the corporate buyer, and are only for the projects' unbundled EACs. The extent to which the corporate buyer off-takes any wholesale electricity price risk from new projects by providing an EAC revenue stream to the generator is unclear.

In Japan, a feed-in-premium (FIP) is paid to some projects. The level of the premium is dependent on the average prices of electricity and EACs in the wholesale market. In theory, the premium will be higher when the average electricity prices and EAC prices at the wholesale market are lower, and vice versa or zero in case of negative. This might make long-term EAC contracts with high EAC prices similar in impact to virtual power purchase agreements, without involving contracting-for-difference mechanisms or direct contracting with generators.

RE100's view is that these contracts must be reported as unbundled procurement of EACs.

⁸ <https://rmi.org/insight/corporate-green-power-procurement-in-china-progress-analysis-and-outlook/>

Appendix F: Links to the GHG Protocol Corporate Standard

1 The RE100 technical criteria and the Scope 2 Quality Criteria

The Scope 2 Quality Criteria define requirements for market-based emissions claims. Broad comparisons can be drawn with the RE100 technical criteria.

Requirements for a credible claim to use of renewable electricity	Requirements for a market-based scope 2 emissions claim
Ensuring accurate generation and attribute information	
<ul style="list-style-type: none"> • Credible generation data • Attribute aggregation 	<ul style="list-style-type: none"> • Convey GHG emission rate
No double-counting of generation attributes or attributes between instruments	
<ul style="list-style-type: none"> • Exclusive ownership (no double-counting) 	<ul style="list-style-type: none"> • Convey GHG emission rate • Be the only instrument that conveys that GHG emissions rate • Tracked, redeemed, cancelled by or on behalf of the reporting entity
No double-claiming between users	
<ul style="list-style-type: none"> • Exclusive claims (no double-claiming) 	<ul style="list-style-type: none"> • Requirement to use the residual mix or document its absence • Utility-specific requirements • Direct purchasing requirements
Matching generation to usage geographically	
<ul style="list-style-type: none"> • Geographic market boundary limitations 	<ul style="list-style-type: none"> • Market boundary limitations
Matching generation to usage temporally	
<ul style="list-style-type: none"> • Vintage limitations 	<ul style="list-style-type: none"> • Vintage limitations

This table is also found in the [RE100 credible claims paper](#).

2 Where do the RE100 technical criteria deviate from the GHG Protocol Corporate Standard?

The RE100 technical criteria deviate from established market-based emissions accounting guidance in some areas, and for different reasons.

2.1 Using market-based instruments to decarbonize scope 1 emissions

RE100 provides guidance for credible use of market-based instruments for claiming scope 1 emissions (i.e., biogas certificates) in the absence of market-based scope 1 accounting guidance from the GHG Protocol.

RE100 specifically advises that energy attribute certificates issued to renewable electricity generated and fed into grids are scope 2 instruments which cannot be used to decarbonize scope 1 emissions, or the emissions associated with electricity which is not consumed from the grid.

2.2 Recognizing passive claims to use of renewable electricity where there is a highly renewable grid and no market

RE100 recognizes passive procurement which conveys no market-based instruments to an organization on grids which are highly renewable (95% or more) and where no market-based instruments exist. This is because the initiative does not feel it is necessary to call for members to drive change in these markets, and recognizes their passive claims there.

It is important to note that while RE100 recognizes claims to use of renewable electricity in these markets, only location-based emissions claims can be made in them.

Appendix G: RE100 Technical Advisory Group (TAG) members

The RE100 TAG contributes to the development of the RE100 technical criteria, but the entirety of the technical criteria may not reflect each TAG member's views.

Andrew Glumac (Chair) – Senior Manager – Renewable Energy, CDP

Nicholas Fedson (Secretary) – Technical Manager – Renewable Energy, CDP

Jared Braslawsky – Secretary General, RECS International

James Critchfield – Director, Green Power Partnership, US Environmental Protection Agency

Yihan Hao – Principal, China Program, Rocky Mountain Institute

Masaya Ishida – Senior Manager, Renewable Energy Institute, Japan

Todd Jones – Director, Policy, Center for Resource Solutions

Doug Miller – Deputy Director, Market & Policy Innovation, Clean Energy Buyers Association

Daniel Riley – Director, International Corporate Climate Partnerships, World Wildlife Fund US

Appendix H: Additional resources and contact information

The [RE100 technical guidance page](#) links to:

- The RE100 technical criteria (this document)
- The full RE100 credible claims paper
- The RE100 Frequently Asked Questions (FAQs)
- The RE100 joining criteria
- RE100's guidance on how its members are held to account
- Yearly RE100 reporting guidance

For general (non-technical) questions about RE100, including requests to join the RE100 initiative, please write to the campaign lead, Climate Group, at info@re100.org.

For technical questions about RE100 guidance, please write to re100@cdp.net