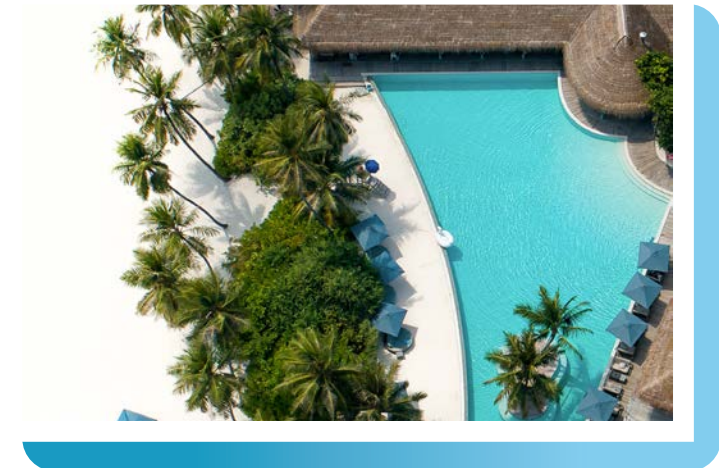
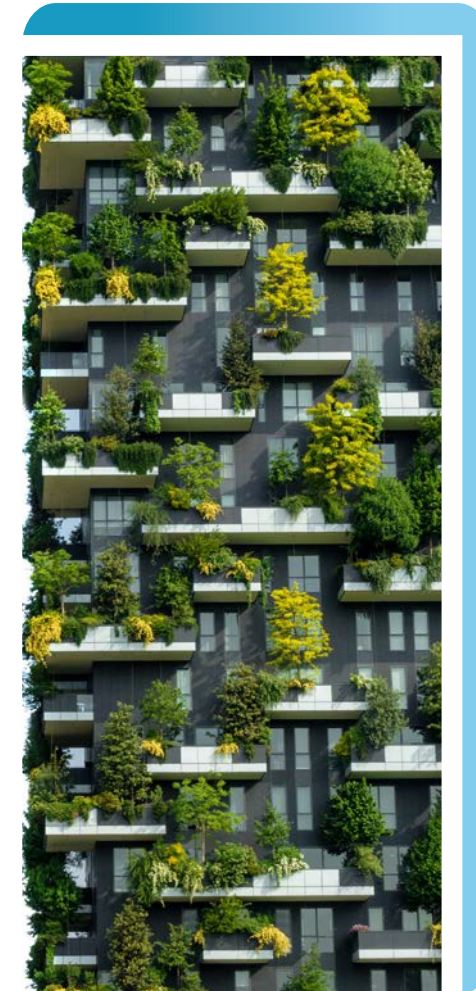


# NET ZERO METHODOLOGY FOR HOTELS

2<sup>ND</sup> EDITION • JUNE 2023

## APPENDIX F

### PURCHASED RENEWABLE ENERGY AND ADDRESSING MARKET BASED EMISSIONS



# APPENDIX F: PURCHASED RENEWABLE ENERGY AND ADDRESSING MARKET BASED EMISSIONS

## F.1 USE OF RENEWABLE ENERGY AT HOTELS

After reducing carbon emissions by increasing energy efficiency measures at hotels, progress should be made on commencing or advancing the procurement of renewable energy.

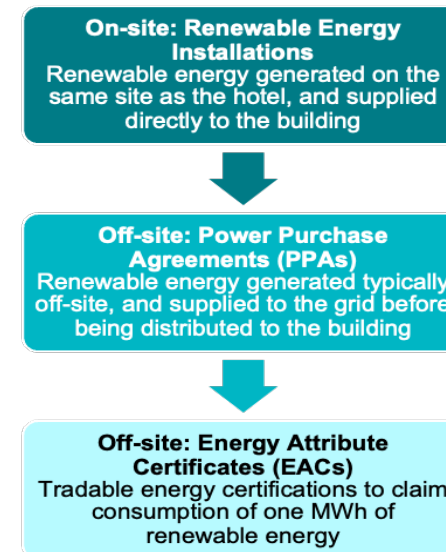
For hotels to embrace renewable energy, a hierarchy of actions (Figure F.1) can be pursued by maximizing on-site renewable energy opportunities before using off-site renewable energy options. This hierarchy is closely aligned with industry resources such as the Green Building Principles<sup>1</sup> by the World Economic Forum (WEF) and JLL, and the Green Building Council Australia's (GBCA) push for climate positive buildings<sup>2</sup>.

The hierarchy is based on the quality and extent of renewable energy to which the source can guarantee **exclusivity** and **additionality**. Exclusivity refers to the extent to which the hotel purchasing the renewable energy can credibly claim that they exclusively own the energy generated and that it was generated from renewable sources. Renewable energy is considered to be additional if it would not have been generated if a hotel had not specifically purchased it. Based on these variables, the following ways to implement renewable energy are available for hotels.

### 1 On-site Renewable Energy Option: Renewable Energy Installations

On-site installation of renewable energy (RE) technologies such as solar panels, wind turbines are one of the direct ways available to a hotel to meet its energy needs. There are several emerging examples where hotels around the world are continuously installing RE technologies on-site and using it for their internal consumption. Some of the key examples are given below:

- **Hotel Geysir, Iceland:** Hotel Geysir, as its name implies, is located near a geyser at the historical site of Haukadalur. The hotel, which is outfitted with twenty-four cabin rooms, is located next to a river and is all about helping guests unwind and regenerate. Hotel Geysir heats its water using a local geothermal system which taps into the natural heat underground.
- **Star Island, Bahamas:** The hotel harnesses the Caribbean region's abundant sunshine and has installed solar panels that power the hotel even through the night.



▲ **Figure F.1 Hierarchy of Renewable Energy Options**

- **Garonga Safari Camp, South Africa:** The Garonga Safari Camp covers 30 percent of their electricity needs with solar energy. They've also worked in a heater pump system, water treatment, vegetable garden, and bio-gas system to minimize their carbon footprint.

While possible, the examples are anecdotal, and installing RE on-site to meet a significant portion of the building's total energy demand can be very challenging for hotels due to constraints such as available sources of geothermal energy, available space to install enough solar panels to generate the electricity required, and sufficient battery storage options which may not fit into an existing hotel.

### 2 Off-site Renewable Energy Option: Power Purchase Agreements (PPAs)

A power purchase agreement (PPA), or electricity power agreement, is a contract between two parties, one generating electricity (usually the renewable energy project developer) and one purchasing electricity. PPAs define all of the commercial terms of the power supply contract, including duration, schedule for delivery of electricity, penalties for under delivery, payment terms, and termination. There are three main types of PPAs, as follows:

- a. **Physical PPA.** Under a Physical PPA, the RE project developer will build, maintain, and operate the renewable energy system, either on the hotel property site or off-site, while assuming the risks associated with owning and operating the system. In return, the hotel will purchase the power at a set price over a specified period of time and receive the physical delivery of (or title to the) electricity through the grid.
- b. **Virtual/Financial PPA.** The main difference is the hotel does not receive the physical delivery of electricity through the grid with a Virtual/Financial PPA (VPPA). Under a VPPA, the RE project developer sells the power to the grid at wholesale market price and sells the power to the hotel at a fixed price. The developer owes the hotel the difference when the wholesale price is above the fixed price, and the hotel owes the developer the difference when the wholesale price is below the fixed price. The hotel would typically receive or pay the developer the net price difference between the fixed price and the wholesale price at the end of each month. The hotel will also receive the environmental attributes of the green energy in form of Energy Attribute Certificates (EACs).
- c. **Sleeve PPA:** In a sleeved PPA, an intermediary utility company handles the transfer of money and energy to and from an RE project on behalf of the hotel buyer. The hotel buyer does not need to be intimately familiar with wholesale power market dynamics, and the buyer is not subjected to wholesale power market price fluctuations because the utility bears the market risk.

<sup>1</sup> Green Building Principles by the WEF and JLL: [https://www.weforum.org/docs/WEF\\_Green\\_Building\\_Principles\\_2021.pdf](https://www.weforum.org/docs/WEF_Green_Building_Principles_2021.pdf)  
<sup>2</sup> Climate Positive Buildings & our Net Zero Ambitions by GBCA: [https://gbca-web.s3.amazonaws.com/media/documents/climate-positive-buildings-net-zero-ambitions\\_Z3pcK5R.pdf](https://gbca-web.s3.amazonaws.com/media/documents/climate-positive-buildings-net-zero-ambitions_Z3pcK5R.pdf). Guidance on the use of on-site and/or off-site renewable energy is provided in the form of 12 scenarios.



**EXAMPLE OF A HOTEL USING PPA MODEL:**

MGM Resorts entered into a 20-year PPA agreement with Invenergy to purchase solar power from a 100 MW solar array in Las Vegas. The solar power will enable the delivery of up to 90% of daytime power in 13 of its Las Vegas resorts, encompassing 65 million square feet of buildings with more than 36,000 rooms on the Las Vegas Strip, including Bellagio, ARIA, Mandalay Bay, MGM Grand and The Mirage

For some hotels based in remote or exotic locations, the challenge with a PPA might be that the regulatory market and the regulatory ecosystem may not be completely developed and do not easily facilitate entering into such energy contractual agreements, and therefore may not fully support the purchase and selling of renewable electricity. Hence, on-site RE may be more convenient in such cases.

**3 Off-site Renewable Energy Option: Energy Attribute Certificates (EACs)**

EACs are tradable energy certificates that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity) and was fed into the grid. As power on the grid comes from various sources such as coal, nuclear, natural gas, renewables etc. which are all blended together, it is difficult for the user to tell whether the electricity which is being consumed is from a renewable source or not. EACs are a way for businesses to certify that they have a valid claim to renewable energy use. To make a credible renewable energy claim and to prevent double counting, EACs must be “retired” after use for businesses to retain ownership of it forever and prevent another entity from making a claim on it. Note that EACs are different from carbon offsets, although both help to reduce atmospheric carbon. While EAC specifically targets lowering a companies’ Scope 2 emissions from purchased electricity and purchases can be used to claim carbon footprint reduction, carbon offsets can be used to compensate for Scope 1, 2, or 3 emissions but without any claim of carbon footprint reduction. There are also differing qualities of EACs available. While high-quality EACs ensure exclusivity of energy provision and additionality, low-quality ones are available on the wholesale market without guarantees on exclusivity or additionality. EACs are referred to by different names in different regions:

- **Guarantees of Origin (GOs):** The EU Renewable Energy Directive from 2009 states that Guarantees of Origin prove to consumers that a given quantity of energy was produced from renewable energy sources. GOs are a purely voluntary system used by businesses, public institutions and households in Europe.
- **Renewable Energy Certificates (RECs):** In North America, RECs must be bought to document and report that the energy consumed comes from renewable energy sources. In the US, RECs are used both for compliance reporting as well as voluntary consumption purposes.

- **International REC Standard (I-RECs):** I-REC is a newer global standard introduced in a growing number of countries where no market mechanism was previously in place. I-REC builds on best practice from the North American REC market and Europe’s GO system and has strong stakeholder support. Currently I-RECs are issued in 22 countries for use in a number of regions, based on the Renewables Good Practice (ReGP) criteria.

Purchasing EACs is essentially paying for the renewable energy that is added to the grid and claiming credit for the energy. There are again two types of EACs:

- **Bundled EACs:** Bundled EACs are sold together with its associated energy from the regional grid. They typically help to finance new renewable energy projects, enabling the hotel company to make “additionality” claims since the investment directly added renewable energy to the grid while displacing energy generated from fossil fuels. If hotel companies are motivated to actively decarbonize the grid and directly drive renewable energy development, choosing this option can help achieve that objective.
- **Unbundled EACs.** In contrast, unbundled EACs are sold separately from the underlying electricity production. They are less expensive as they typically come from an oversupplied renewable energy market (e.g. regions with abundant solar and wind energy). However, hotel companies that purchase unbundled EACs cannot claim “additionality” as they do not help increase renewable energy capacity.

Hotel companies have their portfolio spread all across the world with separate ownership of the assets, which makes it difficult to obtain any meaningful scale on renewable energy installation or PPAs. As the transversal decarbonization pathway involves decarbonizing the power grid, hotels should include the ability to support the grid’s decarbonization through unbundled EACs because that is where the largest scalability exists, and impact can be made which will benefit other sectors by accelerating the power grid’s addition of renewables. Allowing for large, unbundled EAC purchases will not match the specific site to specific power grids or countries, but the overall contribution to renewable energy will be the same.

**F.2 AVAILABILITY OF PURCHASED RENEWABLE ENERGY**

Unfortunately, not all markets are ready for the transition towards renewable energy for companies to exercise their off-site options of purchasing renewable energy either through PPAs or EACs. According to the Carbon Disclosure Project (CDP)<sup>3</sup>, the readiness of the renewable electricity market is determined by four factors:

- 1 Renewable Energy Resources:** Supply of renewable energy options in the market.
- 2 Market Infrastructure:** Market fundamentals within which renewable energy sector operates.
- 3 Policy:** Government policies supporting renewable energy generation and uptake.
- 4 Corporate Demand:** Demand for renewable energy from companies operating in the market.

The broad spectrum in how different markets are transitioning towards renewable

<sup>3</sup> Based on CDP’s methodology for the Asia Renewable Electricity Competitiveness Index (AREC-Index): [https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/931/original/REenergize\\_Asia\\_report\\_20211027.pdf?1635322051](https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/931/original/REenergize_Asia_report_20211027.pdf?1635322051)

energy is acknowledged and incorporated in the methodology through the **regional equity principle** introduced in Section 3. This principle underpins the approach towards the milestones based on a designation of **mature markets** and **developing markets**. These markets are not easily defined as there are likely to be transition pathways and stages for countries that evolve in the coming years based on the four factors identified above. For the purposes of this methodology, the **designation is essentially once a viable renewable energy purchase of EAC or direct sourcing of Power Purchase Agreements (PPAs) for all its electricity is readily available for a single hotel to purchase directly at reasonable cost, the location would be considered a mature market**. In engagement targets for the net-zero plan, companies should monitor the readiness to help forecast the potential of the portfolio's composition to transition from developing markets to mature markets.

Hotels in mature markets are enabled to readily purchase renewable energy, hence they are expected to transition to renewable energy and decarbonize across the value chain more quickly, and the related cost increases should be absorbed more quickly. Conversely, developing markets should be prioritized first in energy efficiency.

**EXAMPLE OF HOTEL USING REC MODEL:**

A Renewable Energy Certificate (REC) program by CLP Power Hong Kong Limited (CLP Power) has recorded its biggest deal after Rosewood Hong Kong committed to buy 13 gigawatt hours (GWh) of renewable energy through the purchase of RECs for six years from 2020. The transaction is equivalent to a reduction of around 4,800 tonnes in carbon emissions associated with electricity, equivalent to around 208,000 trees planted.

**How to Purchase EACs/RECs**

- **Utilities:** RECs can be purchased directly through electric utilities. In US, there are almost 850 utilities which offer green power programs to their customers by charging a nominal premium. Most green pricing premiums cost around 1 to 2 cents per kWh.
- **Auctions and Exchanges:** Entities covered by mandatory national/regional programs and renewable purchase obligations can purchase RECs through national/registries and auctions by bidding. India has set up an REC registry for tracking, purchasing and selling of RECs as part of national program.
- **Brokers/Traders/Consultants:** There are various brokers, traders and consultants involved that can secure delivery of RECs and IRECs and can also add quality labels that enable customers to make certifiable claims on the additional impacts of purchases.
- **Third-party organizations:** There are several third-party organizations which provide unbundled RECs.
- **Green Tariffs:** These are energy contracts sold to energy users by utility

companies that only source their energy from 100% renewable sources. Such contracts enable buyers to purchase bundled renewable energy from a specific project through a special utility tariff rate.

**Equity and Emissionality Principles in Purchasing RECs**

Other important concepts that should be incorporated while purchasing RECs or green electricity are "Emissionality" and 'Equity'. Emissionality shows how renewable energy project can make an even bigger impact on emission reductions. Due to the uneven distribution of clean energy around the world, the location of the renewable energy project has a large influence over how much carbon it is reducing or replacing. For example, building a solar farm in a location where the grid is dirty will have a much more impact on driving down emissions as compared to building it in a location with clean grid. Also, renewable energy projects not only reduce emissions but also creates employment opportunities, brings economic and social development benefits in the region. Therefore, while purchasing RECs/green electricity, companies should also look at various equity and emissionality principles in their contracts.

**F.3 SCOPE 2 QUANTIFICATION AND ACCOUNTING APPROACHES**

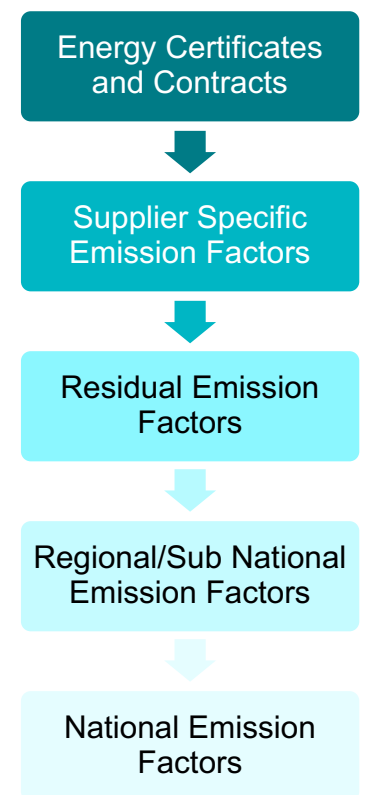
Different electricity suppliers and contracts emit different amounts of emissions depending on the energy source or technology. As companies become increasingly able to purchase renewable energy with lower carbon emissions from their chosen suppliers, the approach towards quantifying and accounting Scope 2 electricity emissions has changed accordingly to support this transition. The GHG Protocol defines two approaches to allocate Scope 2 emissions to the end-users which companies are to report.

**Location-based emissions**

The location-based method reflects the average emissions intensity of grids on which energy consumption occurs. This method applies to all locations where grids are used for the distribution of energy, where electricity demand causes the need for energy generation and distribution. The location-based method follows the basic allocation approach (Section 1.2) and uses mostly grid-average emission factors that are based on statistical emissions information and electricity output aggregated and averaged within a defined geographic boundary and a defined time frame. This includes regional/sub-national grid averages and national production grid averages.

**Market-based emissions**

The market-based emissions are emissions from electricity that companies have chosen in the electricity market. Under this accounting method, a company should use one of the following emission factors according to this hierarchy (Figure F.3):



**► Figure F.3  
Hierarchy of choosing market-based emission factors (CDP guidance)**



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**Energy Certificates and Contracts:** In this, the emission factor is usually mentioned in the energy certificates or contracts for the qualifying contractual instruments. These can include Energy Attribute Certificates (RECs, GOs, I-REC, etc.) and PPAs with energy generators (for both low-carbon, renewable, or fossil fuel-based energy) etc.

**Supplier-Specific Emission Factor:** If the emission factors are not already mentioned in the energy certificates and contracts, then the hotel should seek the factors from the supplier it is in contract with. Any green electricity products purchased from energy suppliers should give an indication of the emission factor. The supplier specific and energy certificate and contracts method can only be used in certain cases and is required for locations where the type of contracts, instruments and information listed above are available to corporate purchasers and if they meet the GHG Protocol's quality criteria. Please see the section below on how to determine supplier-specific emission factors.

**Residual Emission Factor:** If a company either does not have any such contracts or its instruments do not meet the quality criteria, then it should use the residual mix - regional emission factors representing the untracked or unclaimed energy and emissions. Please see the section below on how to determine residual emission factors.

**Location-Based Emission Factor:** If the residual mix is not available, then the location-based method shall be used and companies should calculate their Scope 2 emissions with either regional/sub-national grid averages or national grid averages. In this case, the reported market-based Scope 2 total will be the same as the location-based total.

**How to determine supplier specific emission factors**

One of the greatest challenges with using supplier-specific emission factors is finding them, as there is no set methodology or resource that publishes this. The potential sources of supplier-specific emission factors are:

- asking utilities complex questions about each of their sources of electricity to confirm that the emissions factors they provide (assuming they have them) accurately represent all delivered power, including both self-generated and imported power, with appropriate emissions factors applied to each power source
- researching the utility and their sustainability or CSR reports
- identifying and cultivating a contact at the utility who has a deep understanding of the emissions profile of their entire power supply
- ensuring that any REC/GOs/EACs purchased has the emission factor mentioned or confirming from the supplier regarding the emission profile

**How to determine residual emission factors**

The "residual-mix" emission factor is much like the grid-average emission factor, but differs in that all of the green electricity attributes have been removed. Where to find residual emission factors? Currently, there is no central database, or a dedicated repository for determining the residual emission factors for each country. Some of the ones that are available are shown below:

- For US, Green-e: <https://www.green-e.org/2020-residual-mix>
- For Europe, AIB: <https://www.aib-net.org/facts/european-residual-mix>

**EXAMPLE**

Suppose Hotel ABC is based in Glasgow. Its electricity consumption in 2020 was around 1,000,000 kwh. The location-based emission factor is taken from UK Government GHG Conversion Factors for Company Reporting 2020. However, for market-based emission factors there are three approaches available by which the hotel can disclose its market-based emissions:

**Scope 2 Location Based**

Consumption = 1,000,000 kwh  
 Grid Emission Factor from UK Government = 0.23314 kgCO<sub>2</sub>e/kwh  
 Scope 2 emissions - Location based = 1,000,000 \* 0.23314 = **233,140 kgCO<sub>2</sub>e**

**Scope 2 Market Based - EACs/RECs**

The hotel has also purchased 1000 RECs (1 REC = 1 MWh) from a nearby wind farm. Since wind electricity generates no emissions, for their market-based figure they have used 0 kgCO<sub>2</sub>e/kwh as the emission factor

$$= 1,000,000 * 0$$

$$= \mathbf{0 \text{ kgCO}_2\text{e}}$$

**Scope 2 Market Based - Supplier Specific**

The hotel finds out that its electricity is coming from a leading utility company in Scotland known as ScottishPower. ScottishPower have listed their own emission factor for their fuel mix generation in their website as 0.264 kgCO<sub>2</sub>e/kwh. Therefore Scope 2 emissions would be Scope 2 emissions - Market based = 1,000,000 \* 0.264 = **264,000 kgCO<sub>2</sub>e**

**Scope 2 Market Based - Residual Mix**

For market based the hotel has used UK's residual mix factor from latest 2020 AIB report

$$= 1,000,000 * 0.316$$

$$= \mathbf{316,000 \text{ kgCO}_2\text{e}}$$

**Current Challenges with using Residual Mix Factors**

There are various challenges pertaining to residual mix factors. One of the major ones is the availability of the data. A central database of resources does not exist to publish residual mix factors. In the US, Green-e published a residual mix, however, it takes into account only the Green-e certified energy sales is not entirely representative, and has not been recently updated at time of publication. Even with residual mix emission factors available, utilising them is not without challenges. Illustrated below (Table F.3) using the residual mix factors from the 2019 to 2021 AIB reports for 30 European countries, there is significant year-on-year variation and is highly volatile. The trend also differs greatly across the different countries. These challenges cause further significant fluctuations in the hotels' GHG inventories which are hard to explain and also causes challenges when communicating progress, analysing results, and forecasting future trends for action planning and budgeting.

▼ **Table F.3 Residual Mix Factors for 30 European Countries (2019-2021)**

COUNTRY	EMISSION FACTOR (KGC02E/KWH)			VARIATION (%)		
	2019	2020	2021	2019 - 2020	2020 - 2021	3 YEAR TREND
Belgium	0.188	0.205	0.149	9.1%	-27.1%	-20.5%
Bulgaria	0.437	0.372	0.404	-14.9%	8.6%	-7.6%
Croatia	0.514	0.469	0.467	-8.8%	-0.5%	-9.3%
Cyprus	0.676	0.642	0.625	-5.0%	-2.6%	-7.5%
Czech Republic	0.595	0.532	0.550	-10.5%	3.3%	-7.6%
Denmark	0.465	0.428	0.529	-8.1%	23.8%	13.8%
Estonia	0.758	0.547	0.637	-27.8%	16.4%	-16.0%
Finland	0.310	0.268	0.285	-13.5%	6.4%	-8.0%
France	0.043	0.059	0.049	35.5%	-17.0%	12.5%
Germany	0.609	0.589	0.618	-3.4%	4.9%	1.4%
Great Britain	0.348	0.316	0.351	-9.1%	11.1%	1.1%
Greece	0.577	0.490	0.445	-15.1%	-9.3%	-23.0%
Hungary	0.286	0.274	0.276	-4.1%	0.8%	-3.3%
Iceland	0.394	0.402	0.423	2.1%	5.4%	7.6%
Ireland (All-Island)	0.495	0.446	0.570	-9.8%	27.7%	15.1%
Italy	0.466	0.459	0.457	-1.6%	-0.4%	-2.0%
Latvia	0.315	0.422	0.303	33.7%	-28.2%	-4.0%
Lithuania	0.352	0.340	0.385	-3.3%	13.0%	9.3%
Luxembourg	0.449	0.000	0.403	-100.0%	NOT APPLICABLE	-10.3%
Malta	0.378	0.391	0.624	3.3%	59.5%	64.8%
Netherlands	0.555	0.452	0.451	-18.6%	-0.2%	-18.8%
Norway	0.396	0.402	0.405	1.4%	0.7%	2.2%
Poland	0.811	0.799	0.850	-1.5%	6.5%	4.8%
Portugal	0.256	0.375	0.281	46.6%	-25.1%	9.8%
Romania	0.311	0.265	0.282	-14.7%	6.2%	-9.3%
Slovakia	0.199	0.218	0.185	9.9%	-15.4%	-7.0%
Slovenia	0.364	0.345	0.565	-5.2%	63.8%	55.3%
Spain	0.343	0.287	0.296	-16.4%	3.2%	-13.7%
Sweden	0.050	0.023	0.077	-53.9%	231.2%	52.6%
Switzerland	0.019	0.030	0.019	63.7%	-36.9%	3.3%

**F.4 RENEWABLE ENERGY TARGETS AND RE100 CONSIDERATIONS**

As explained in the above sections, there are various approaches to procure renewable energy using which companies are increasingly setting renewable energy targets to fulfil their sustainability and net zero goals. However, when procuring RECs/EACS companies often get stuck and remain unclear about the rules on what is accepted and how to account for RECs in their operations etc. While companies can set their own internal renewable energy targets, one global initiative that brings together all companies together and provides a global framework to commit to 100% renewable energy is RE100. RE100 also has their own comprehensive and rigorous technical criteria which addresses majority of the companies' questions around RECs accounting and considerations.

The section below summarizes some key rules from RE100:

- **Which companies can join RE100?** At least 100,000 MWh electricity consumption. Smaller consumption companies can be selected based on 'influential' profile. (key player in market, industry, policy advocacy etc.)
- **What emission scopes should be covered?** All scope 2 emissions associated with purchased electricity AND All scope 1 emissions associated with generation of electricity for internal consumption
- **What is the target year?** RE100 companies must select their own target date for achieving 100% renewable electricity. The minimum requirements are:
  - 100% by 2050, with interim steps of at least:
  - 60% by 2030
  - 90% by 2040
- **Which energy sources are considered renewable?** RE100 considers electricity generated from the following energy resources to be renewable:
  - Wind
  - Solar
  - Geothermal
  - Sustainably sourced biomass (including biogas)
  - Sustainable hydropower





■ **What are the recognized ways of procuring Renewable energy?**

**Renewable electricity self-generation used for self-consumption**

- a. Self-generation from facilities owned by the company (on or offsite)

**Renewable electricity purchase**

- b. Purchase from on-site installations owned by a supplier
- c. Direct line to an off-site generator with no grid transfers
- d. Direct procurement from offsite grid-connected generators e.g. Power Purchase Agreement (PPA)
- e. Green electricity products from an energy supplier (e.g. Green Tariffs)
- f. Unbundled Energy Attribute Certificate (“EAC” or “certificates”) purchase
- g. Default delivered renewable electricity from the grid, supported by certificates
- h. Default delivered renewable electricity from a grid that is 95% or more renewable and where there is no mechanism for specifically allocating renewable electricity

■ **Can we claim the % renewable electricity in the grid?**

In general, no. The goal of RE100 is to have carbon free grids by 2040 and this requires action by corporate consumers. There are only two specific cases when companies can claim this for RE100. 1) when their utility/ supplier is retiring energy attribute certificates on behalf of their customers. 2) when the grid is 95% or more renewable and there is no mechanism for actively sourcing renewable electricity from the grid.

**Note: the grid here refers to national grid and not regional / subregional / provincial grids**

■ **What about countries or regions with a high percentage of renewables in the grid?**

Companies can only claim renewable electricity from the grid as per the 2 cases mentioned above. Currently the only countries that RE100 recognizes where the grid has high percentage of renewables and no mechanism for sourcing renewable electricity are Paraguay, Uruguay and Ethiopia.

Other countries with a high percentage of renewables on the grid such as Norway and Iceland are not eligible for passive claims as the renewable attributes from the electricity have been transacted to specific customers. This also does not apply to countries such as Nepal which have a high percentage of domestic renewable electricity but import significant amounts of electricity.

■ **Does RE100 accept cross border VPPAs (virtual power purchase agreements)?**

RE100 only accepts cross border VPPAs from within the same market boundary, for example within the defined European market boundary. The concept of a VPPA between Brazil and Argentina, for example, doesn’t make sense as they are not part of the same market for renewable electricity.

■ **Why do we have to buy renewable electricity in Costa Rica when the grid is already over 99% renewable?**

RE100 recognizes that some countries have a high percentage of grid renewables and no mechanism for voluntary procurement of renewable electricity from the grid. RE100 members can, in their RE100 reporting, count all of their electricity consumption from the grid as renewable (i.e., take a passive approach) in a country when the default grid mix of renewables is over 95% and when there is no mechanism for actively sourcing renewable electricity from the grid. In the case of Costa Rica, active renewable electricity sourcing mechanisms are available for corporates, for example I-RECs. Since active procurement is available, companies having operation in Costa Rica cannot claim grid renewables

■ **Which Energy Attribute Certificate (EACs) are currently accepted by RE100?**

Currently the following EACs are recognized under RE100:

- REC (US and Canada)
- GOs or REGO (Europe)
- T-REC (Taiwan)
- J-Credit, NFC, GEC(Japan)
- I-REC (International)
- TIGR (International)
- GEC (China)
- NZREC (New Zealand)

■ **Which vintage year EACs are recommended?**

The general rule of thumb is to use EACs vintages that are as “reasonably close” to reporting year as possible. However, there is no clear definition of “reasonably close” from RE100. Each EAC standard or certification body has their own vintage year recommendation. Therefore, it is advisable to look into each standard or certification body’s rules on a case-to-case basis.

However, for this Hotel Net Zero Methodology we have researched the following vintage year guidance and recommendation from Green-e and GOs

- Green-e certificates: Green-e standard has a 21-month vintage requirement:
  - ▶ Within the 12 months of the same reporting year
  - ▶ Within 6 months before the reporting year
  - ▶ Within 3 months after end of reporting year
- Guarantees or Origin (GOs): GOs are valid for 12 months after the production of the relevant energy unit.

■ **Do we have to buy RECs for each distinct e-GRID region in US?**

No, RE100 does not recommend purchasing renewable mechanisms for each sub-national market boundaries. Market for renewable electricity recognized for RE100 are “Individual countries are distinct markets for renewable electricity, except for single markets”. The international single markets defined in RE100 are:

- United States and Canada
- [Single Market in Europe](#)

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MARKET BASED  
EMISSIONS**

Therefore, RECs from Texas can be used to cover operations in the rest of the US and vice versa.

- **What about islands which are part of a country but do not share the same electricity grid (ex., Puerto Rico, an unincorporated territory of the USA). Do we have to buy renewable electricity from the specific island where we have consumption?**

RE100 does not have subnational market boundaries and thus would allow a claim for a REC from the mainland USA being used for consumption in Puerto Rico, assuming that the rules of the REC system allow this.

However, it may not be a best practice for companies to purchase a REC from mainland USA and claim it for their operations in Puerto Rico as doing so will have no impact on the electricity mix of Puerto Rico.

- **Can I source electricity from China for operations located in Taiwan, China?**

Currently, Taiwan has its own distinct RE market known as T-REC and China has Chinese Green Energy Certificates (GECs), therefore separate RECs should be used for the two markets.

- **What should I do when renewable electricity sourcing options are not available in a country of operation?**

- Engage with local suppliers/utilities or policymakers and aggregate demand with peers to open markets for voluntary procurement
- Explore the feasibility to generate own renewable electricity

- **What is RE100's guidance on materiality and exclusions?**

Some companies have small operations such as a single store or bank branch in a market, which have negligible impact on local demand. In markets where it is not technically feasible for the company to source renewable electricity due to reasons like small size, small load, landlord-tenant issues, etc., these small loads can have a disproportionate impact on the company's ability to make RE use claims, tying up team resources whilst having no material impact on market transformation due to their small size. 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:**

- 1 Can exclude small loads (small offices, retail outlets, etc.) having electricity consumption up to 100 MWh/year, per market, from the RE100 target boundary;
- 2 Can claim exclusions up to a total of 500 MWh/yr (with a limit of 100 MWh/year per market);

Cannot make any exclusions according to the above criteria in markets where it is technically feasible to source renewable electricity via any credible sourcing options such as EACs

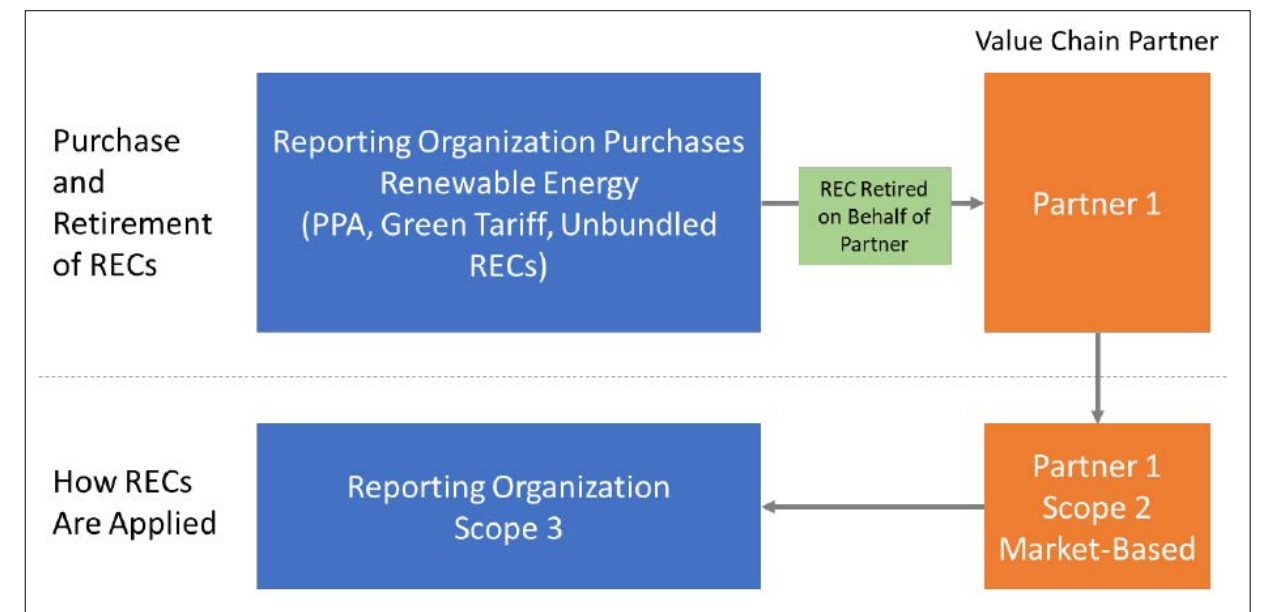
- **Where do companies report their data and progress for RE100?**

Annual reporting to RE100 has historically maintained two reporting routes: the CDP Climate Change Questionnaire, and the RE100 Spreadsheet. In the 2021 and earlier annual disclosure cycles, RE100 members were encouraged or required to report using the RE100 Spreadsheet because it captured data the CDP Climate Change Questionnaire did not about sourcing of renewable electricity and allowed RE100 to assess their reporting against RE100's technical criteria to validate their claims. **In 2022, RE100 is retiring the RE100 Spreadsheet** because the CDP Climate Change Questionnaire, when presented to RE100 members, captures the same information as the RE100 Spreadsheet. This change is intended to improve RE100's insights into its membership and greatly streamline the process of reporting to RE100 by making it part of reporting to CDP.

**F.5 ALLOCATING RECS**

One of the common instances observed in corporate RECs accounting is that organization may consider procuring RECs not just for their own use but for their suppliers, partners to help them reduce their scope 3 emissions as part of engaging with their value chain. In this case, reporting organization should **not** apply the renewable electricity to its scope 2 emissions. The value chain partner **should** apply the renewable electricity to its market-based scope 2 electricity emissions, and the reporting organization in its scope 3 accounting. Following are some approaches and scenarios for arrangements between reporting organization and value chain partner which are published by US EPA:

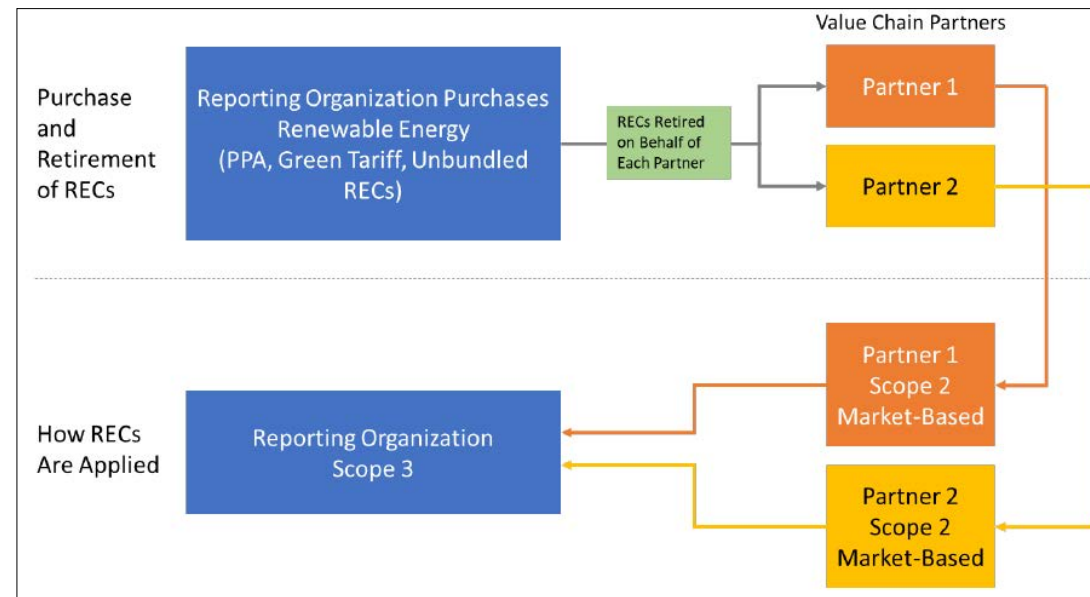
**APPROACH 1** Reporting Organization Purchases Renewable Electricity for a Single Partner and RECs are Retired on Behalf of the Partner.



**▲ Hotel industry example** A hotel operator purchasing and retiring RECs for one of its carpet suppliers

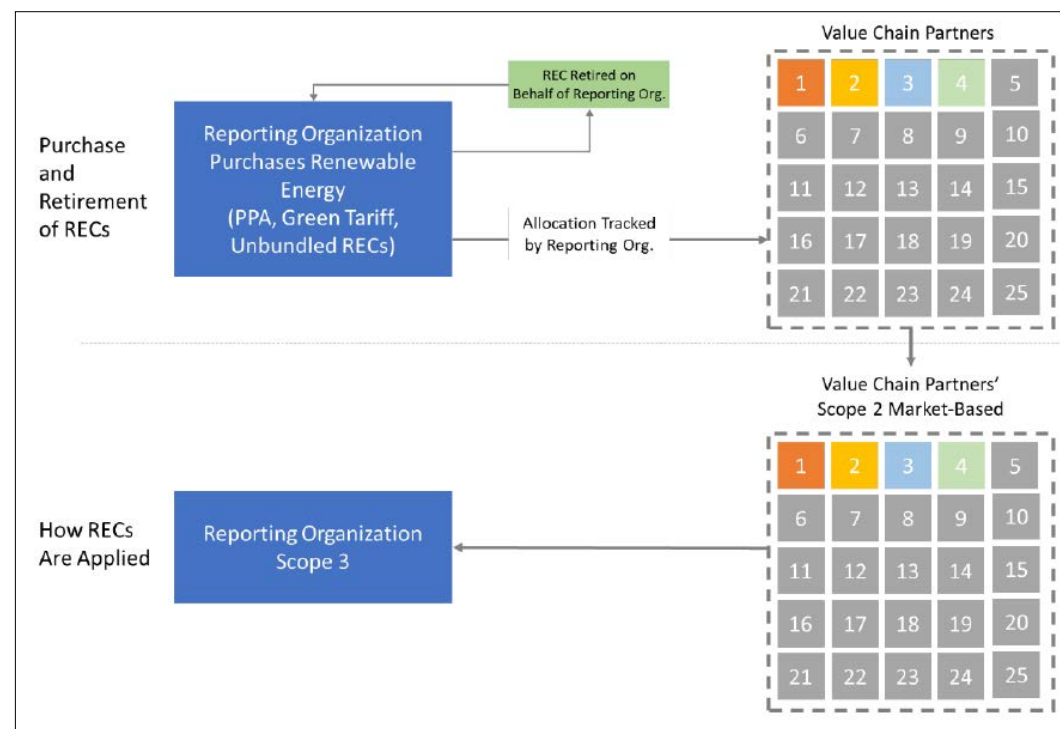


**APPROACH 2** Reporting Organization Purchases Renewable Electricity for Multiple Partners and RECs are Retired on Behalf of the Partners



**▲ Hotel industry example** A hotel operator purchasing and retiring RECs for its multiple office suppliers.

**APPROACH 3** Reporting Organization Purchases Renewable Electricity for Multiple Partners and RECs are Retired on Behalf of the Reporting Organization which then allocates it for its partners



**▲ Hotel industry example** A hotel operator purchases and retires RECs for its own, and then allocates it to various shops who have leased spaces in the hotel operator's hotel based on % of floor area acquired or % of energy consumed if spaces are metered.

**Conundrum of Landlord-Tenant RECs Accounting**

One of the most contentious issues in RECs accounting in hotel or any facility sector is for the landlord-tenant relations. Below approaches must be followed for such cases:

- When a building owner reports emissions using the operational control approach, the space it leases to a tenant may be considered outside the owner's operational control, and within the operational control of the tenant. In this case, emissions from that space would be included in the downstream leased assets category of the building owner's scope 3 emissions. The owner may wish to purchase renewable electricity for the building to improve its sustainability and thus its attractiveness to tenants.
- The building owner, or a property manager acting as the owner's agent, may purchase renewable electricity and not apply it to their own market-based scope 2 reporting, but instead allocate it to one or more tenants. The tenant then is able to apply that purchase in their market-based scope 2 emissions, and the owner is able to reflect it in their scope 3 emissions for downstream leased assets.
- If the building owner purchases renewable electricity for only a portion of the building space, the owner can choose to which tenant(s) the renewable electricity is allocated. The number of RECs procured and allocated should not exceed the amount of electricity purchased and consumed.
- **How to avoid double counting**
  - If a building owner purchases renewable electricity for a tenant space and applies it in their own market-based scope 2 reporting, that renewable electricity should not also be claimed by the tenant in their scope 2 reporting. The tenant should include it in their scope 3 (upstream leased assets)
  - If a tenant purchases renewable electricity to apply to the space they occupy and applies it is their own market-based scope 2 reporting, then the owner should not include it in their scope 2 reporting. The owner should include it in their scope 3 (downstream leased assets)





## F.6 RECS CLAIMS

One of the most common issues in corporate accounting is claiming and communicating your renewable electricity purchases. Claiming RECs should be done in a manner that does not convey misleading efforts or should not ‘greenwash’. There is various guidance available that gives recommendation on claiming RECs such as the [Center for Resource Solutions](#). The section below provides some best practices on RECs claiming:

- a. In order to make claims about renewable electricity use through, any company should also retain the RECs certificates or the green attributes associated with the electricity use.
- b. Be clear in your contracts and power purchase agreements: who owns the RECs? Be specific and accurate about REC ownership and renewable energy claims.
- c. If you are making a claim about using renewable energy, make sure you own and retire the RECs.
- d. Use electronic REC tracking systems if possible.
- e. Educate owners of renewable electricity infrastructure about what types of claims they can make, whether they are keeping the RECs or selling them to another party.
- f. If you don’t own the RECs, don’t make public claims about using renewable energy. Instead you may make the following types of claims:
  - i. “We generate renewable energy and sell the RECs to our utility”
  - ii. “We generate renewable energy, but sell all of it to others”
  - iii. “We installed solar panels, but sell the renewable energy to others”
- g. Get your sales and/or claims certified by independent expert organizations or certification standard such as Green-e, GOs etc.

