ZERO ADVISORY GUIDE

ZERO by GO2

BUNDLED VS UNBUNDLED

EACs and PPAs explained for ZERO users

Electricity is one of the largest sources of emissions for most companies and their suppliers. As customers, investors, and regulators ask for clearer proof of climate progress, switching to renewable electricity is usually one of the first and most practical steps a company can take.

In most cases, though, you can't choose which power plant your electricity comes from. Your sites draw from the same grid as everyone else around them. To solve this, energy markets use contracts and certificates that let companies buy renewable electricity and claim its use in their reporting. There are two main ways to do this: buy certificates on their own (**unbundled**) or buy renewable power and its certificates together (**bundled**), most often through a Power Purchase Agreement (PPA).

With different certificate types, contract structures, and reporting standards that keep changing, many sustainability teams find this topic confusing. In this guide, we'll work to demystify it. We'll explain what Energy Attribute Certificates (EACs) are, how bundled and unbundled purchases compare, how each one counts toward your targets, and how you can start using ZERO for your renewable energy procurement.

What is an EAC?

An EAC is a certificate that proves **one megawatt-hour (MWh) of renewable electricity** was produced. It records where and when the electricity was generated, by which plant, and with which technology (such as wind, solar, hydro, or biomass).

Once electricity enters the grid, there's no way to tell which plant it came from. The EAC carries the renewable claim separately from the power itself, so the company that holds and uses the certificate is the one that can say it used that renewable MWh.

Same certificate, different names

EACs have different names depending on where they're issued, but they all work the same way.

Europe
Guarantees of Origin (GOs)

United Kingdom
Renewable Energy Guarantees of Origin (REGOs)

United States and Canada
Renewable Energy Certificates (RECs)

China
Green Electricity Certificates (GECs)

South Korea
Korean RECs (K-RECs)

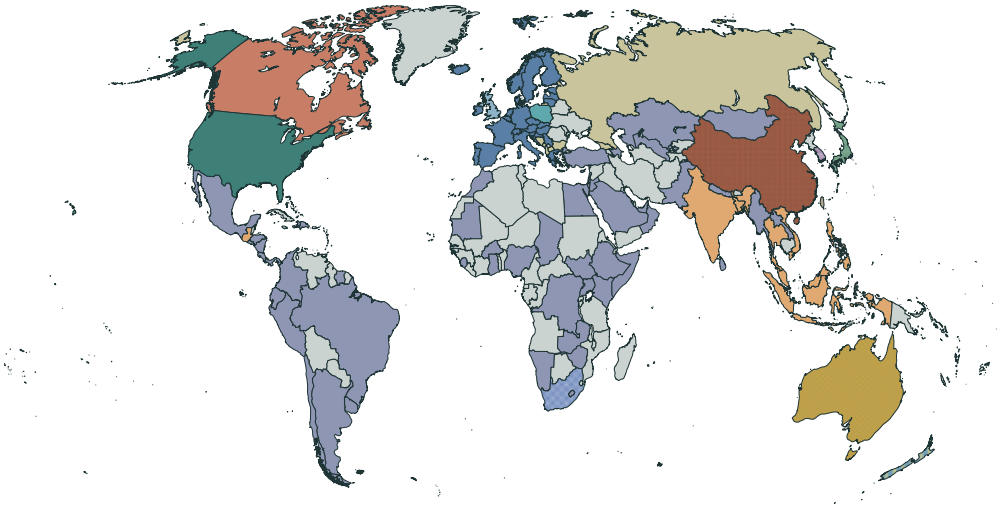
Japan
Non-Fossil Certificates (NFCs)

Taiwan
Taiwan RECs (T-RECs)

Many other markets in Asia, Latin America, Africa, and the Middle East
International RECs (I-RECs)

Global EAC markets

Energy Attribute Certificate schemes in force, by market.



Australia LGCs & I-RECs
Canada CAN-RECs
China GECs
Europe GOs
Global I-RECs
Global I-RECs & TIGRs
Global Misc national program
Global No active EAC program
Japan NFC-FiT & J-Credits
New Zealand NZECs & I-RECs
Poland Polish GOs
South Africa za-RECs & I-RECs
South Korea K-RECs
Taiwan T-RECs & I-RECs
UK REGOs
USA US-RECs

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How EACs work

Every EAC goes through the same four steps, from the moment the power is generated to the moment a company claims it.

Issuance

A renewable plant produces 1 MWh and feeds it into the grid. An official registry issues one certificate for that MWh.

Tracking

The certificate is held in an electronic registry account, similar to a share held with a bank. Each has a unique ID, so it can't be counted twice.

Transfer

Certificates can be bought and sold separately from the physical power. They move between registry accounts until they reach the company that will use them.

Retirement

When a company claims the renewable electricity, the certificate is retired in its name (some registries call this cancellation or redemption). The claim is official and the certificate leaves circulation for good.

Every EAC is issued and tracked in an official registry. In Europe, most countries run national registries linked through the Association of Issuing Bodies (AIB). North America uses systems like M-RETS, WREGIS, and ERCOT, and the I-TRACK Foundation oversees I-RECs in many other markets. You don't need to manage any of this yourself, but a legitimate EAC can always be traced back to one of these registries.

Who can retire certificates depends on the market

Retirement doesn't work the same way in every market. Each registry sets its own rules on who can retire a certificate for a company. Europe shows how much this varies, even between neighboring countries.

Who can retire	What it means	Example markets
A third party like GO2 can retire directly	GO2 holds a registry account and retires the certificates for you	France, Netherlands, Norway, Sweden, Switzerland, Portugal, Hungary, Belgium (Flanders), United Kingdom
Any licensed energy supplier in that market	GO2 transfers the certificates to a local supplier, who retires them for you	Spain, Denmark, Finland, Iceland, Luxembourg, Slovenia
Only your own electricity supplier	Certificates must be retired by the specific utility supplying the consuming site	Germany, Austria, Italy, Ireland, Czech Republic, Croatia, Greece, Slovakia

Asia has its own variations. In China, South Korea, and Japan, national certificates are retired through a local partner in that market.

For companies with sites in several countries, this is often where EAC purchasing gets difficult. Buying the certificate is usually simple. Making sure it's retired correctly, in the right company's name and for the right site, requires knowing the local rules. A full overview of GO2 Markets' retirement capabilities by market is in the Appendix.

How PPAs work

A Power Purchase Agreement (PPA) is a long-term agreement with a specific wind, solar, or hybrid project. PPAs provide electricity price security by fixing costs and reducing power market exposure, and deliver high-quality green credentials by directly enabling the financing and construction of new renewable capacity.

Under a PPA, the EACs from the project are transferred to you and retired in your name, and that's what allows you to claim the renewable electricity.

So the choice is less about EACs vs PPAs, and more about whether you buy EACs unbundled or bundled with the power in a PPA.

EACs and PPAs at a glance

	Unbundled EACs	PPAs (bundled)
What you buy	Certificates only	Electricity (physical or financial) plus its certificates
Contract length	Covers a single period (usually 1 year, sometimes less)	Typically 10 to 15 years, but some options are available for 2 to 10 years
Volume	Any size	Usually tens of gigawatt-hours (GWh) a year or more
Time to set up	Days	Often 6 to 18 months
Upfront effort	Low, no change to your supply contract	High: legal, finance, risk, and procurement teams involved
Price exposure	Pay per certificate, renewed each period	Fixed or indexed price, a hedge that can work for or against you
Support for new projects	Limited, mostly supports existing plants unless newer CODs (Commercial Operation Date) are specified	Strong, often enables new wind or solar to be built
Best for	**Fast coverage, many sites, smaller loads, suppliers**	**Large, stable loads seeking long-term impact and price certainty**

How EACs count in your footprint

EACs reduce your reported **Scope 2** emissions under the market-based method of the Greenhouse Gas (GHG) Protocol. Scope 2 covers emissions from the electricity your company buys, and the GHG Protocol asks companies to report it in two ways.

Location-based

Uses the average emissions of the local grid, so your purchases don't change it.

Market-based

Reflects what you buy. Electricity covered by retired EACs counts as zero-emission and the rest is calculated with a residual mix factor: the grid average once all claimed renewable electricity is removed.

The GHG Protocol asks companies to report both figures, and RE100 tracks progress using the market-based one.

For an EAC to count, it needs to meet a few basic quality criteria:

- It should come from the **same market** as the electricity it covers, so a German site needs European GOs, not US RECs.
- It should match the **period of your consumption**, usually the same reporting year.
- It must be **retired in your company's name**, so no one else can claim the same certificates.

What RE100 adds

If your company is a member of RE100, the global initiative of businesses committed to 100% renewable electricity, there's an extra layer of rules on top of the GHG Protocol. RE100's technical criteria set out which purchases count toward the 100% goal and how close the plant needs to be to the site using the electricity.

The rule with the most impact here is **plant age**. Since the 2024 reporting year, purchased renewable electricity must come from plants built or repowered within the last 15 years, with up to 15% of a company's total consumption exempt. Long-term contracts with new projects, such as PPAs, continue to count after the plant passes 15 years. Unbundled EACs don't have that exception, so the age of the plant behind each certificate now matters.

Wind and solar are the most common technologies behind RE100 purchases, as they're the most widely accepted. Hydro and biomass face extra sustainability requirements and, in many cases, aren't accepted.

Standards are changing

The GHG Protocol is revising its Scope 2 guidance, and the proposals point toward stricter matching on time and location. Annual matching remains valid under the current guidance, and we'll share updates as the new rules are finalized.

The Science Based Targets initiative (SBTi) has also tightened its rules. Under its Corporate Net-Zero Standard V2.0, published in June 2026, progress is measured against a physical inventory, based on the energy a company can show was actually delivered to it. Unbundled EACs can still be used for Low-Carbon Electricity targets, but only from plants within the same region and no older than 15 years. Companies using more than 10 GWh a year must also report how much of their low-carbon electricity was matched hour by hour. PPAs tied to a specific plant are better placed to count in the physical inventory.

For a closer look at how EACs and other market-based instruments are affected, you can read our article **SBTi Corporate Net-Zero Standard V2.0: What Changes for Market-Based Instruments**.

Common misconceptions

"EACs are the same as carbon offsets."

They aren't. An EAC shows where one MWh of electricity came from and is used in your Scope 2 reporting. A carbon credit represents one tonne of CO_2 avoided or removed somewhere else and can't be used to reduce Scope 2.

"EACs are just greenwashing."

This is the concern we hear most often. EACs are issued by regulated registries, often appointed by governments, and each one is tied to a real MWh from a real plant with a unique ID, so it can only be claimed once. In Europe, GOs are the official tool suppliers use to show customers how much of their electricity is renewable, and the GHG Protocol, RE100, and CDP all accept EACs in market-based reporting. Problems come from how certificates are used, for example buying from the wrong market, mismatching the reporting year, or overstating what the purchase achieves. When EACs are bought and retired correctly and described accurately, they're a transparent claim that can be audited. If a company wants to show it helped build new renewable capacity, a bundled option like a PPA is the better fit, and we're open about that.

"If I buy EACs, my building gets different electricity."

Your power still comes from the local grid. What changes is who can claim the renewable electricity, which is how the GHG Protocol's market-based method is designed to work.

"Any certificate will do."

Certificates need to match your market and reporting period, meet any extra rules from RE100 or SBTi that apply to you, and be retired for you. Working with an experienced provider takes care of this.

"EACs are the whole answer."

They're a credible first step and part of most renewable electricity strategies. Over time, many companies add on-site generation, PPAs, and energy efficiency measures.

Which is right for your company?

Unbundled EACs

Usually make sense if you need coverage quickly, have many smaller sites across several countries, or don't have the volume or internal resources for a long-term contract.

A PPA

Makes more sense once you have a large, predictable demand in one market, can plan years ahead, and are comfortable managing price risk. In return, you can point to a specific new project your company helped bring online.

Many large companies use both. A PPA covers their largest and most stable demand, and unbundled EACs cover the rest, such as smaller markets, sites a PPA can't reach, and the years before a new project starts producing. Starting with unbundled EACs today doesn't rule out a PPA later. It often helps build the data and internal support needed to get there.

Using EACs across your supply chain

For most companies, the largest share of emissions sits in their **Scope 3**, which covers emissions across their value chain. Often, a large share of these comes from their suppliers' electricity use. When a supplier covers its own electricity with EACs, its Scope 2 goes down and so do the emissions linked to the products and services it sells you, which reduces your Scope 3 emissions.

This makes EACs one of the most practical ways to engage suppliers and make progress toward your Scope 3 targets. They're quick to buy, available in nearly every manufacturing region, and don't require a long-term contract or any equipment on site. For suppliers just getting started, they're often the first step before larger projects like on-site solar or a PPA.

The difficulty is coordination. Suppliers are spread across countries, each with its own certificate type, registry, and price. Asking each one to work this out alone takes time, and it's hard for you to track what has actually been done. **ZERO was built to make this easier.**

Buying EACs on ZERO

ZERO lets you easily source affordable EACs for your own sites and across your supply chain in one place. It's run by GO2 Markets, which has helped companies source EACs globally for more than 13 years. Our team handles the sourcing and retirement, including in markets where only certain suppliers can retire certificates for you.

For your own sites

Add your electricity consumption and current renewable share by site, and ZERO shows you the certificate options for each market. You choose what fits your goals and budget, and the certificates are retired for you, ready for your Scope 2 reporting and for sharing with your customers. For gas, the marketplace also offers options to purchase biomethane across a wide scope of markets.

For your suppliers

Invite suppliers to ZERO so they can share their energy data and buy EACs for their own operations through the same marketplace. You can see which suppliers have taken action and how much of their electricity is covered, which supports your Scope 3 reporting. Suppliers get a clear, guided way to make their first renewable electricity purchase, and you make auditable progress toward your Scope 3 targets.

ZERO focuses on unbundled EACs because they're the quickest way to get both your own sites and a wide group of suppliers started at the same time. If a PPA is part of your plans, the GO2 team can help you work out how it fits with your certificate purchases.

Support options

If you have questions about certificate types, quality criteria, or how this fits your targets, you will find more information in the various resources on the **Advisory page** or by chatting with the **ZERO AI assistant**. Want more support? Our expert team of advisors is available for **1:1 meetings**, which can be scheduled through the Advisory page.

Sources

- GO2 Markets, SBTi Corporate Net-Zero Standard V2.0: What Changes for Market-Based Instruments, September 2026
- Science Based Targets initiative, Corporate Net-Zero Standard V2.0, June 2026
- Greenhouse Gas Protocol, Scope 2 Guidance, 2015
- Climate Group, RE100 updates its technical criteria to accelerate corporate impact

APPENDIX

Retirement capabilities by market

GO2 Markets can retire energy attribute certificates (EACs) for you in most markets that issue them, either directly in the registry or through a local partner. Find your region below, then look for your country under its retirement pathway.

How to read this overview

Retirement pathway	What it means for you
Direct Retirement	GO2 Markets retires the certificates itself in the registry. It's the simplest and fastest route.
Retirement Via Supplier	In this market, GO2 Markets either doesn't have a registry account or local rules only let energy suppliers retire the certificates on your behalf. For these markets, GO2 Markets will coordinate the retirement with your local energy supplier after being provided with their registry account number.
Retirement Not Available	GO2 Markets can't retire certificates for this market today, in most cases because no EACs are issued there. Renewable claims may still be possible through power purchase agreements (PPAs) or certificates from grid-connected countries.

Europe

Retirement pathway	Countries
Direct Retirement	Belgium (Flanders), France, Hungary, Netherlands, Norway, Poland, Portugal, Sweden, Switzerland, United Kingdom
Retirement Via Supplier	Albania, Austria, Belgium (Wallonia), Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Georgia, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, North Macedonia, Serbia, Slovakia, Slovenia, Spain
Retirement Not Available	Andorra, Belarus, Belgium (Brussels)*, Kosovo, Liechtenstein, Malta, Moldova, Monaco, Romania, San Marino, Ukraine

*Brussels issues Guarantees of Origin (GOs), but there's currently no way to retire them against a specific consumption site.

Asia

Retirement pathway	Countries
Direct Retirement	Azerbaijan, Bangladesh, India, Indonesia, Kazakhstan, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan (I-RECs)*, Thailand, Uzbekistan, Vietnam
Retirement Via Supplier	China, Japan, South Korea, Taiwan (T-RECs)*
Retirement Not Available	Afghanistan, Armenia, Bhutan, Brunei, Cambodia, Kyrgyzstan, Maldives, North Korea, Russia**, Tajikistan, Timor-Leste, Turkmenistan

*In Taiwan, GO2 Markets retires International Renewable Energy Certificates (I-RECs) directly. Where Taiwan Renewable Energy Certificates (T-RECs) are required, retirement runs through a local supplier.

**Russia issues national certificates, but GO2 Markets doesn't currently work with retirement partners there.

Americas

Retirement pathway	Countries
Direct Retirement	Argentina, Brazil, Canada (all provinces and territories), Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, United States (all states and Puerto Rico), Uruguay
Retirement Not Available	Antigua and Barbuda, Bahamas, Barbados, Belize, Bolivia, Cuba, Dominica, Grenada, Guyana, Jamaica, Paraguay, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Venezuela

Middle East

Retirement pathway	Countries
Direct Retirement	Egypt, Israel, Jordan, Lebanon, Oman, Saudi Arabia, Türkiye, United Arab Emirates
Retirement Not Available	Bahrain, Iran, Iraq, Kuwait, Palestine, Qatar, Syria, Yemen

Africa

Retirement pathway	Countries
Direct Retirement	Burkina Faso, Chad, Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Lesotho, Mauritania, Mauritius, Morocco, Namibia, Nigeria, Sierra Leone, Somalia, South Africa, South Sudan, Uganda, Zambia, Zimbabwe
Retirement Not Available	Algeria, Angola, Benin, Botswana, Burundi, Cabo Verde, Cameroon, Central African Republic, Comoros, Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Gabon, Gambia, Guinea, Guinea-Bissau, Liberia, Libya, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sudan, Tanzania, Togo, Tunisia

Oceania

Retirement pathway	Countries
Retirement Via Supplier	Australia, New Zealand
Retirement Not Available	Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu