

PRIMER

INTRODUCTION TO ENVIRONMENTAL ATTRIBUTE CERTIFICATES (EACS): U.S. RENEWABLE ENERGY CREDITS (RECS)



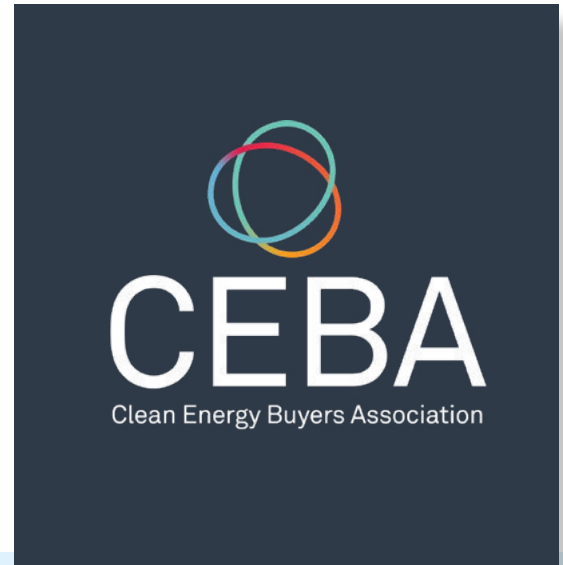
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ABOUT THE CLEAN ENERGY BUYERS ASSOCIATION

The Clean Energy Buyers Association (CEBA) activates a community of energy customers and partners to deploy market and policy solutions for a carbon-free energy system. CEBA's aspiration is to achieve a 90% carbon-free U.S. electricity system by 2030 and cultivate a global community of customers driving clean energy.

To join CEBA or learn more about the organizations participating in the CEBA community, visit www.cebuyers.org.

TABLE OF CONTENTS

02	AUTHORS & ACKNOWLEDGMENTS
04	PURPOSE/INTRODUCTION
04	AUDIENCE
05	WHAT ARE EACS AND RECS?
05	KEY TAKEAWAYS
06	WHY ARE EACS/RECS NECESSARY?
06	THE U.S. REC MARKET
08	REC TREATMENT AND MANAGEMENT
10	CONSIDERATIONS FOR THE FUTURE



PURPOSE/INTRODUCTION

Energy customers will gain a broad understanding of the purpose and function of Energy Attribute Certificates, specifically U.S. Renewable Energy Credits (RECs), in the energy market. This overview includes a summary of the reasons customers would invest in RECs, an introduction to the REC market, and important considerations when using RECs to make claims about renewable energy generation.

AUDIENCE

Energy customers who are new to the renewable energy procurement process — or those who are seeking insights on the purpose of Energy Attribute Certificates (EACs)/ Renewable Energy Credits (RECs) in their energy transactions — will benefit from this resource.

WHAT ARE EACS AND RECS?

An Energy Attribute Certificate (EAC) is a market-based, tradable instrument that represents the ownership rights to environmental and other non-power attributes associated with a product. In the United States, EACs are known as Renewable Energy Credits/Certificates (RECs), with one megawatt hour (MWh) of renewable energy generation creating one REC. RECs are numbered

certificates that provide information about the type of energy generated (wind, solar, etc.), when the generation occurred, the location of the generator, and other details. RECs can be sold in conjunction with produced electricity (known as bundled RECs) or sold and traded separately from produced electricity (known as unbundled RECs).

KEY TAKEAWAYS

- 01** RECs are an essential instrument used in the renewable energy market to substantiate environmental claims made by energy customers.
- 02** Customer companies employ a variety of REC management strategies that vary depending on the priorities and goals of each organization.
- 03** REC treatment and management can be complex. Advisors offer support in REC product selection, retirement, and strategy.



WHY ARE EACS/RECS NECESSARY?

Once energy enters the electricity grid, it is impossible to trace the electrons back to their point of generation, which can make it difficult to ascribe the environmental benefits from renewable energy purchasing to a specific consumer. RECs allow customers to substantiate their purchase and validate their claim to the associated environmental benefits and Scope 2 emission reductions. In this way, RECs are used as the currency of renewable electricity and

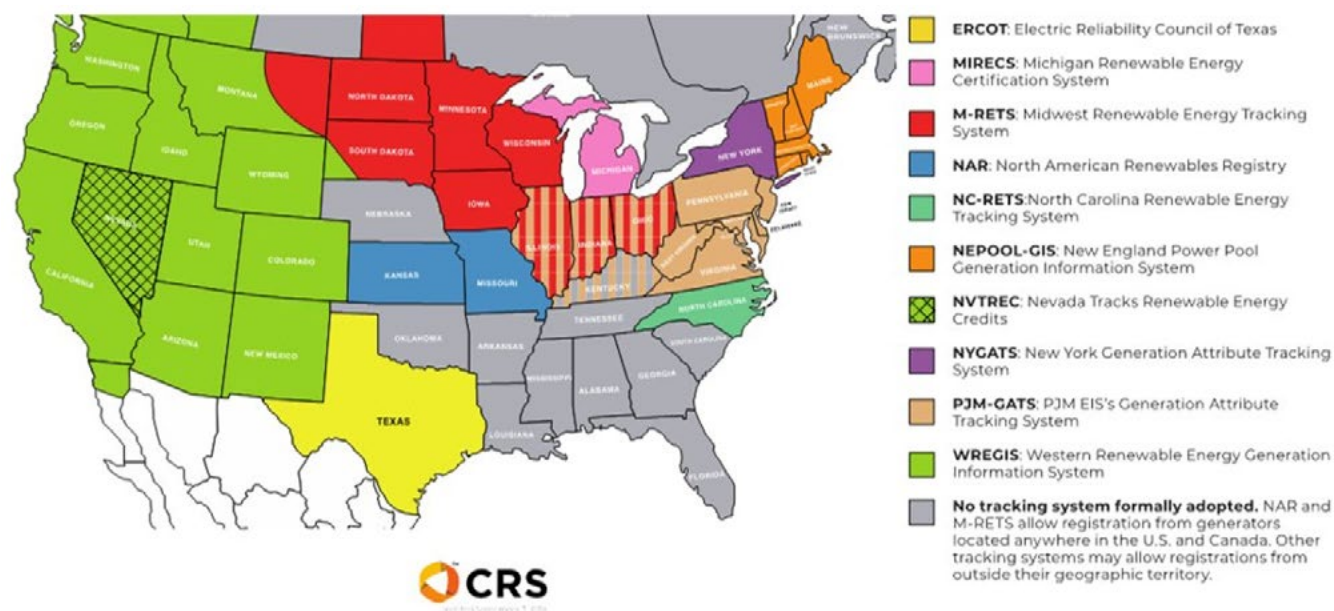
voluntary clean energy market claims. RECs are also used as a mechanism to exhibit compliance with state Renewable Portfolio Standard (RPS) policies, which impose mandated targets for retail sales of renewable energy generation. To avoid double-counting the benefits of a given MWh of renewable energy generation, a REC must be retired when a claim about its use is made.


THE U.S. REC MARKET

The economic value of a REC can vary dramatically depending on a variety of factors. Just like any other commodity, the market for RECs is based on supply and demand. There are several different REC markets — and associated tracking systems — around the country, as seen in the figure below.

Tracking systems are databases, often electronic, that allow RECs to be traded among account holders. Each REC is given a unique ID number and can only be held — and ultimately retired — in one account at a time to avoid double counting.

FIGURE 1: REC MARKETS AND ASSOCIATED TRACKING SYSTEMS





Bundled RECs are typically sold in association with energy from a specific project, and the benefits of its generation are more easily traced to a specific energy user. By contrast, unbundled RECs are decoupled from the generated electricity.

The purchase of unbundled RECs has become a popular mechanism for energy customers new to the renewable energy market to begin their procurement journey. Unbundled RECs may be leveraged by companies that do not have access to retail electricity suppliers that offer adequate renewable option(s), that have a large geographically dispersed load for which individual contracting is problematic, or that have load where on-site or off-site renewable energy deals aren't feasible or economical. For those customers that have a more robust procurement strategy — including Virtual Power Purchase Agreements (VPPAs)¹, on-site, etc. — unbundled RECs from the open market may be used to

quickly fill in holes as other procurement mechanisms are pursued and at the end of an accounting period to bridge the gap between the number of RECs originally procured and actual electricity used.

Still, because of the decoupled nature of unbundled RECs from energy generation, and because unbundled RECs are often bought and sold after a project comes online, there is debate as to the impact that buying unbundled RECs from the open market has on renewable energy capacity beyond sending a demand signal for more generation. An energy customer that chooses to buy unbundled RECs on the open market will often specify requirements to bolster their impact claims, although they may not be able to acquire a product that fulfills all of these requests, depending upon availability of open market RECs. More on this in the REC Treatment & Management section beginning on page 8.

¹A note on RECs from VPPAs: While an energy customer does not take delivery of the electricity produced from a project with which they have a VPPA, VPPA RECs are generally considered to be quite impactful as the VPPA contract allows for a new clean power project to be built and provide clean electricity to the grid. There is some industry debate as to whether these RECs should be classified as bundled or unbundled, though in practice, the designation may not be of particular importance. CEBA would describe them as "virtually bundled."

Because there is not a definitive authority on REC categorization, CEBA's working definitions for RECs are as follows:

- Unbundled RECs are procured by an energy customer from a broker. They are completely divorced from the original project; the purchase transaction/contract price between energy customer and seller is a simple number of RECs x price.
- Virtually bundled RECs are procured by a buyer through a VPPA, where the buyer only procures RECs and does not purchase any electricity; the purchase transaction/contract price between buyer and seller references electricity market prices, but no power/electricity is transacted through the VPPA.
- Bundled RECs are procured by an energy customer through a physical contract. For example, with a physical PPA or on-site project, the energy customer is purchasing electricity and RECs in the same contract.

Unbundled REC costs are based on generation location, volume, project type, degree of specificity of geography, and how far in advance purchases are made. REC pricing can be impacted by state and regional requirements and definitions, such as what can be counted as an eligible renewable resource. State RPS policies drive significant demand for RECs and can have a large impact on REC prices. Most states with RPS programs require that RECs come from local projects, which creates variations in supply/demand and price differences across regions. In 2020-2021, an increasing demand for RECs and a corresponding shortage in the national market drove up costs — in some cases pushing prices from \$1 to \$7 per MWh/REC. The REC market is considered a close or tight (meaning illiquid) market, which makes price forecasting difficult, and the industry lacks a free and transparent index that details real time REC prices. Most customers receive price updates from green marketers, brokers, or consultants. **For more information on the differences in REC Markets, we recommend consulting the EPA's REC resource.**

Does REC Purchasing Come With Risks?

- **REC pricing can be volatile.** Unbundled REC costs increased significantly in 2020-2021. Any company that is reliant on purchasing unbundled RECs to meet their energy and sustainability goals may face substantial unexpected premiums.
- **Companies may run a reputational risk when purchasing unbundled RECs that may not make a meaningful impact.** Unbundled RECs do not necessarily encourage the development of new clean energy resources. Companies that point to REC purchasing in support of 100% renewable or other sustainability claims may be seen as making a less impactful claim, or even as greenwashing by some audiences. Also, as companies evolve their emissions strategies to focus on more impactful procurement, unbundled REC purchases may not meet their internal standards.

REC TREATMENT & MANAGEMENT

When a company wishes to make claims regarding the use of renewable electricity or their reduction of greenhouse gas emissions, they must formally retire a REC within the relevant tracking system to ensure the MWh they are referencing is only claimed once. Usually, RECs are purchased and retired in the generation year (or vintage) during which the energy is used. When purchasing unbundled RECs, some companies will prioritize purchase of RECs from a specific region so they can claim that their support of renewable energy is greening the grid on which their facilities operate, while others find national RECs meet their messaging needs. Some

customers will prioritize the purchase of Green-e certified (or Green-e certifiable) RECs. Green-e provides auditing services to prove that RECs are not double counted or double claimed. Because the owner of a REC is the only party that can claim its associated benefits, and because claims about operating on renewable energy may add to a company's perceived value to clients, there are strict rules and restrictions about how such claims are made. **The CRS's REC Claims and Ownership Guide and FTC's Green Guides provide more guidance on this topic.**

Because of the variety of available REC products, most energy customers engage a marketer, broker, or consultant to handle their REC management. For example, an external party may be able to offer insight into future availability of a desired REC-product, may be able to aggregate REC purchases across facilities to simplify the contracting process, or may provide guidance as to the quality of available RECs. External support that is managing REC purchasing for multiple companies can achieve economies of scale through being part of the REC registries and/or Green-e (a REC certification organization), which require significant financial commitments prior to transaction. Some large energy customers with experienced sustainability teams will undertake their own REC management, but this is uncommon.

REC strategies and management decisions will vary from company to company, depending on risk appetite, budget, and goals. As with all other clean energy procurement mechanisms, it is very important to ensure internal stakeholder alignment and buy-in when purchasing RECs, as this will help level set on budgeting constraints, procurement preferences, and any hedging strategies. Because the REC market fluctuates often, it is also helpful to have some budgetary freedom in managing REC purchases. **For more information on ensuring internal alignment, see the CEBA Building the Business Case For Renewable Energy Primer.**

A note on arbitrage: Because RECs are priced differently in different markets, some customers with contracts for VPPAs or bundled renewable energy in certain markets (the Northeast for example) will sell their RECs for a profit and replace them with cheaper national RECs in a process known as REC arbitrage (or REC swap). Depending on the kind of impact claims a customer may be looking to make, arbitrage

Who Can Help Me With My REC Procurement?*

- **Brokers** – Primarily handle REC identification; For a commission, brokers will make an introduction between parties that then contract directly.
- **Consultants** – Assist with clean energy procurement strategy development including goal setting, emissions measurement, and contract negotiation; Consultants often refrain from direct REC management, as this can be seen as a conflict of interest vis-a-vis strategy development.
- **Marketers** – Act as aggregators for REC availability by purchasing and maintaining their own portfolio of RECs that can then be sold to the energy customer; Marketers may contract for RECs from a variety of locations and project-types in order to offer the end-customer options that fit their needs.

***Note:** These distinctions are a generalization, and many companies offer a variety of services tailored to their own strengths. See the CEBA Buyers Advisors Overview for more details.

can be an attractive method of improving the economics of a company's renewable energy procurement program. **More information on this topic can be found in the EPA's [REC Arbitrage Guide](#).**

CONSIDERATIONS FOR THE FUTURE

While the unbundled REC market was developed to, and has been quite effective at, enabling robust renewable energy claims and showing demand for renewable energy generation, many customers' procurement strategies are evolving. For example, 24/7 carbon-free commitments seek to drive greater impact and accelerate decarbonization by ensuring a company procures clean energy produced on the same grid and at the same time as their load, at all times. Customers undertaking a 24/7 strategy will still need to retire RECs to substantiate claims, but will reduce their reliance on unbundled RECs purchased to true-up their annual position. Learn how to expand the suite of energy procurement options needed to drive greater decarbonization impact through the [Clean Energy Buyers Institute \(CEBI\)'s NextGen Carbon-Free Electricity Procurement Initiative](#).

For more information on the renewable energy procurement process, we recommend:

[Sustainability Energy Options](#)

[Internal Support Guide](#)

[Deal Structure Primer](#)

[Engaging Buyer's Advisors](#)

[Business Case For Renewable Energy Primer](#)





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