TRANSACTIONS

UNDERSTANDING REC TRANSACTIONS

Renewable Energy Certificates (RECs) are digital certificates that evidence the generation of electricity from renewable energy sources. Entities purchase RECs to report clean electricity consumption in a transparent and globally accepted disclosure format. This Cheat Sheet outlines the core transaction structures for RECs, and how to evaluate which structure is right for specific organizations.

PRIMARY TYPES OF REC TRANSACTIONS AND COMMON USES:

- **Bundled Transactions**

  Buyers purchase electricity and RECs from the same source. Bundled transactions are most common when electricity buyers are in direct communication with independent power producers (IPPs), utilities, or power retailers. This option is ideal for entities that want to ensure their electricity consumption supports specific physical renewable energy generation, as well as those wishing to make clean electricity consumption claims from assets they own or directly purchase electricity from—such as rooftop solar or power purchase agreements (PPAs). Bundled transactions are often most appropriate for large scale electricity buyers.

- **Unbundled Transactions**

  Buyers purchase RECs and electricity from different sources. This option is ideal for organizations who want to support renewable energy, but might not have direct wire access to it. Unbundled REC transactions are most common for grid-connected electricity consumers, and in many cases, are the only option available in electricity markets that do not offer alternative procurement structures such as PPAs or rooftop leasing. Transactions of unbundled certificates are often facilitated by intermediaries such as REC brokers and traders, and can be executed in a large range of transaction sizes, anywhere from 1 MWh and up.

COMPETITIVE REC PROCUREMENT

REC procurement, much like clean electricity procurement, can be approached competitively through structured processes such as tendering and bid selection. The degree to which this is aggregated with, or disaggregated from, physical electricity procurement depends on the preferences of the parties, as well as what is permissible withing the market.

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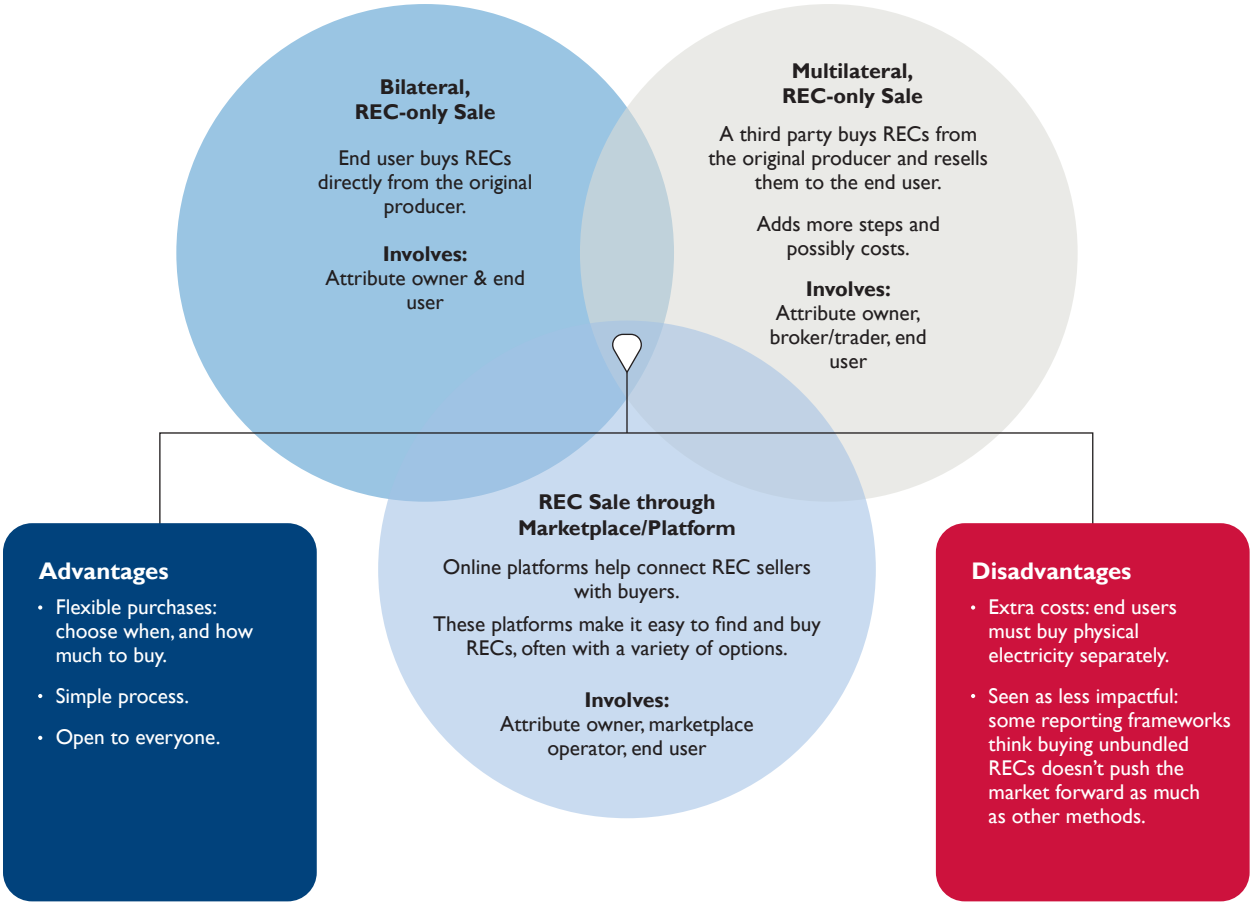
For unbundled transactions, end users are encouraged to discuss their preferences with multiple brokers and traders.[1] Developing Request for Proposals (RFPs) can be an effective way to ensure that end users have access to a wide range of REC products, and that selection is competitive. The CPC is currently developing a template RFP to support competitive procurement in this context, which will be made available through its resource library.

In bundled transaction structures, while RECs are not bought from a separate entity through an RFP, end users should still ensure that REC components are integrated into clean electricity procurement. End users should evaluate various clean electricity products and negotiate with suppliers on the inclusion of RECs in their procurement. For instance, in markets that allow both virtual PPAs and rooftop installations, end users should evaluate both the electricity procurement terms, as well as the REC rights delivered through the contract. In doing so, it is essential to clarify whether RECs are part of the clean electricity offering and, if included, whether they are priced inclusively or separately from electricity.

COMMON UNBUNDLED TRANSACTION STRUCTURES



[1] Search "I-REC(E) Participant Contact List" on the I-TRACK website for a full list of I-REC(E) brokers and traders, updated monthly.

COMMON BUNDLED TRANSACTION STRUCTURES

SELF-CONSUMED POWER + RECS

Organizations use electricity generated on-site, and may 1) use the associated RECs for reporting their own clean electricity use, or 2) sell them to third parties and not claim to use the clean electricity. Entities self-consuming electricity and wishing to use RECs must select only one of these two options.

- **Option1:** Where the organization self-consumes the RECs it supports transparent reporting, but the organization misses out on profit from REC sales.
- **Option2:** If they choose to sell the RECs, the organization makes profit on the RECs, but can no longer claim to have consumed renewable electricity as the REC sales forfeits this claim.

Involves:

- Attribute Owner (facility owner or solar lessor)
- Third-party buyer (optional)

CORPORATE POWER PURCHASE AGREEMENTS (PPAS)

A Corporate PPA is a special contract where businesses agree to buy electricity from renewable sources, along with RECs. These deals can be direct, where the company uses the physical clean electricity and is connected by wire, or virtual, where they don't use the physical electricity directly but have contracts in place that deliver the green benefits (RECs) and potentially establish strike prices to enable contracts for differences.

These agreements can help companies save money over time and are often viewed as particularly high-impact with respect to establishing new or additional renewable energy generation. However, they often involve significant upfront costs and long commitments, and are not available in all electricity markets.

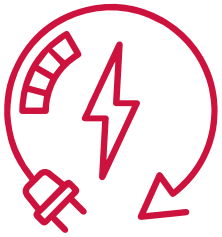
Involves:

- IPP
- End user
- Grid Operator (for Virtual PPAs)
- Transaction advisors

UTILITY GREEN TARIFF

Organizations can choose to buy clean physical electricity + RECs directly from a utility that offers a "green tariff" program.
Choosing a green tariff simplifies the buying process, allowing organizations to claim the use of clean electricity with minimal contractual complexity, and sometimes supports broader national energy goals if the green tariff is structured to deliver revenue into earmarked funds.

However, green tariffs are often charged at premium prices, and their availability varies by location and utility/retailer.



Involves:

- Utility/Retailer
- End user

THE IMPORTANCE OF REC OWNERSHIP

WHY OWNERSHIP MATTERS

- RECs allow the environmental benefits of renewable energy to be officially passed from renewable energy generators to the end users. To ensure this transaction is credible, it is critical to establish proof of (original) ownership at the point of REC issuance.
- When a renewable energy generator (or an entity acting on its behalf) registers their asset to start producing RECs, ownership of the RECs is verified by reviewing contracts. The contract review seeks to prove the registrant is the rightful owner of the environmental attributes, and has corresponding rights to request issuance of RECs for onward trade, transfer, or use.

WHICH DOCUMENTS OUTLINE OWNERSHIP?

- Power Purchase Agreements (PPAs) are the most commonly reviewed document for establishing ownership of RECs. They commonly indicate whether the power producer or end consumer is the owner of environmental attributes.
- In cases where template PPAs or subsidy contracts are used to govern electricity sales, they should be written to identify REC ownership. Where contracts or PPAs do not mention ownership, the Issuer (responsible for verifying ownership) may request alternative documents or representations.

AVOIDING DISPUTES

For REC transactions to proceed smoothly, clear contracts that define REC ownership and the associated responsibility of each party, are essential. A well-defined contract prevents misunderstandings that could lower the REC's value.

- New electricity contracts should explicitly define who owns the RECs or associated environmental attributes, prior to signature.
- If older contracts don't specify REC ownership, market actors are advised to refer to international guidelines first, followed by examples from global carbon markets, to help parties agree, avoiding legal problems. CDM carbon markets are often used as precedents for establishing ownership under contracts that do not define it.
- In addition to defining ownership, especially in corporate PPAs, electricity contracts or PPAs should detail who will be responsible for handling REC settlement (such as account management, issuance requests, and redemptions) and paying associated implementation or registry fees.

TRANSACTING RECS: REGISTRY ACCOUNT TYPES

To sell RECs, the perspective entity must open an account in a REC registry. To buy RECs, consumers can either open and manage their own accounts, or request that their vendors do so on their behalf. There are two registry account types commonly available:

- Generators and device owners looking to issue RECs from assets they own must open a **Registrant account**. This account type is used to register devices, and request the issuance of RECs into designated Participant accounts. Registrant accounts cannot hold or redeem RECs, and are therefore only used for the registration and issuance process.
- Organizations that want to trade, transfer, and manage the redemption of RECs must open a **Participant account.** This account type allows the custody of RECs, inbound and outbound transfers of active RECs, and the final redemption of RECs (either on behalf of the account holder, or third parties for which it is making redemptions).
- Organizations that wish to register and transact RECs are required to open **both a Registrant, and a Participant account.**

OPENING AN ACCOUNT

For Registrants

- Registration is **free** and requires direct contact with the issuer for account opening, device registration, and certificate issuance.
- To become a registrant, check with the relevant market operator (I-TRACK / TIGRs) in your country and follow the provided instructions.

For Participants

- Participants pay associated fees for account opening and maintenance.
- Registration involves agreeing to terms and conditions, completing an application form, and providing a copy of the passport of the lead user. Know Your Client (KYC) checks on Participant accounts are more robust because they enable trade.
- Each market operator provides detailed steps and necessary forms on their websites.

REDEEMING (USING) RECS

- Once issued and deposited into a Participant account, RECs can either be transferred (as active instruments) to other Participant accounts; or they can be redeemed (constituting final usage) directly on behalf of a REC buyer that does not have a registry account.
- For transfers, the Participant must indicate the account into which active RECs will be transferred, and execute the transfer.
- For redemptions, the Participant will indicate who the "Beneficiary" of the REC redemption is, where they are redeeming the REC (location of load) and for what reporting period. Once they redeem the RECs, a PDF certificate is generated and sent to the beneficiary, constituting the final "consumption" of the REC.

ROUTES TO MARKET

Direct REC Sales (Bundled/Unbundled)	
How it works:	• Energy producers sell RECs directly to organizations that want to use them, avoiding intermediaries. The energy producer must hold a Registrant account, and either the producer or the buyer needs a Participant account to redeem the RECs. • The parties involved must agree on several key points: (i) who will be the "beneficiary" of the REC redemption; (ii) who (which account holder) manages issuance and redemption and pays the associated registry fees; and (iii) the financial value of the RECs being transacted.
Pros:	• Prices and contract terms can be negotiated directly. • Both buyer and seller have full control over the process.
Cons:	• Requires effort to manage registry accounts and oversee the transaction details. • Where buyers and sellers are not already in touch, matchmaking and price determination can be time-consuming.
Who it's for:	• Organizations with direct relationships that can manage complex corporate PPAs. • Electricity producers looking to add bundled RECs to their offerings, alongside electricity. • Buyers and sellers with existing PPAs or supply contracts who wish to confirm the electricity transacted is from renewable sources for onward disclosure. • Rooftop lessors supplying bundled products to facility owners.

Sales through Intermediaries (Unbundled)

How it works:

Energy producers and buyers use third-party entities to facilitate REC transactions. This approach is useful for unbundled REC deals, often on an annual basis. This process can work in two ways:

- **Brokers.** They connect buyers and sellers, often earning success fees on transactions, rather than taking positions themselves. Since they earn revenue based on connecting entities (rather than directly transacting the RECs) brokers do not necessarily need to have accounts;
- **Traders.** Take positions by purchasing RECs (or REC registration rights for projects) and selling them onward to end users. Traders often get involved in the registration, issuance, and redemption process, and therefore must have registry accounts.

Pros:

- Intermediaries are often able to provide tailored advice with respect to procurement decisions, answering questions that buyers or sellers may not be able to answer independently—such as what RECs are needed to meet reporting requirements.
- Simplifies transactions by having intermediaries handle registry functionality.
- Allows power producers to earn REC revenue with little or no direct market involvement.
- Provides buyers with an easy way to buy RECs from different regions through one entity.
- Available for purchase orders or any size, depending on the intermediary.

Cons:

- Intermediary fees can reduce profits for producers and raise costs for buyers.
- For procurements (both buy- and sell-side) that set fixed prices over long time horizons, price fluctuations can lead to opportunity risks.
- Unbundled transactions may provide reduced marketing value when compared to direct bundled transactions that link buyers to specific projects.

Who it's for:

- Producers wanting to sell RECs with minimal market engagement.
- Smaller producers who can't attract major buyers independently.
- Buyers that prefer one-off purchases as opposed to forward contracts.
- Buyers conducting REC procurement in multiple countries that prefer turnkey procurement solutions—often offered by traders.

Marketplaces (Unbundled)	
How it works:	• Marketplaces provide an efficient platform for buying and selling RECs, focusing on unbundled transactions. These platforms simplify the transaction process and often increase price transparency, making both sale and procurement quick and easy. • For power producers, marketplaces can streamline buyer identification and asset registration procedures (by pre-qualifying and sometimes directly submitting evidence documents). Buyers benefit from a wide selection of RECs, along with (in some cases) access to other environmental products, such as carbon credits, all in a single procurement environment.
Pros:	• Efficiency: Marketplaces reduce administrative tasks for all involved. • Transparency: Marketplaces provide clear visibility into REC options and prices, allowing for easy comparison. • Variety: Users can access a range of environmental instruments in a single platform.
Cons:	• Limited personalized support means that buyers seeking to use marketplaces should have a good understanding of their internal procurement needs. • Usage fees are common, adding to transaction costs.
Who it's for:	• Entities with a clear understanding of their internal REC requirements (such as requirements for fuel type, location, and vintage). • Organizations that prioritize clear, upfront pricing, over tailored support. • Power producers that prefer minimal involvement in selling RECs and are willing to pay marketplace fees in exchange for simplified sales.

Utility Aggregation/Green Tariffs (Bundled)	
How it works:	• Green tariffs allow a utility or power retailer to differentiate prices by "clean electricity" and "conventional (grid mix) electricity" rates. To establish green tariffs, utilities either source/purchase RECs from independent power producers and re-package them, or (where utilities own their own generation assets) they conduct registration and redeem RECs on behalf of electricity consumers subscribed to the green tariff.
Pros:	• Offers clear and uniform pricing, simplifying decision-making for buyers. • Integrates easily with standard procedures for buying electricity, often representing the simplest method of procurement in countries that provide green tariffs. • Public perception of bundled procurement is generally positive.
Cons:	• No direct communication between buyers and sellers limits ability to negotiate rates. • Some green tariffs mix RECs from different fuel sources, leaving end users with less control over the specific clean electricity fuel type they are sourcing from.
Who it's for:	• Utilities seeking to increase product offerings and build sustainability reputation. • Buyers wanting an efficient and simple procurement process. • Organizations considering alternatives to brokers or traders. • Organizations looking for transparent and uncomplicated pricing. • Producers looking for limited involvement in selling RECs.