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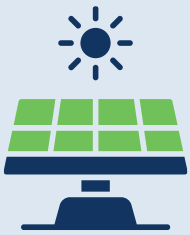

Renewable Energy Credits (RECs)

Frequently Asked Questions

What is a Renewable Energy Credit?

Renewable Energy Credits (RECs), also called renewable energy certificates, represent the environmental attributes of renewable energy generation. They are generated when one megawatt-hour (MWh) of electricity is produced from a renewable energy source, such as wind, solar, hydroelectric, or biomass. RECs allow consumers to support and claim the environmental benefits of renewable energy, even if they are not directly connected to a renewable energy facility.
Many organizations purchase RECs to meet the renewable energy purchasing targets included in their sustainability reports. In Europe, the equivalent of a REC is a Guarantee of Origin (GO).

How do RECs contribute to sustainability?

RECs theoretically contribute to sustainability by incentivizing the production of clean and renewable energy. However, if principles of "additionality" are not followed with REC creation or purchase, RECs may not lead to incremental renewable power generation development.

A REC purchase meets the additionality criteria if the associated renewable capacity would not have been added without that purchase. For example, purchasing a REC that is tied to a project that is yet to be built and is located in a grid where it will displace fossil generation is seen as more additional.

Directly investing in onsite renewable projects is the most effective way to reduce emissions, while also de-risking future climate commitments.

What are the options to achieve Scope 2 emission goals?

Purchasing renewable energy, on-site renewable energy generation, internal energy efficiency projects, purchasing RECs, carbon offsets[1], green tariffs[2], virtual power purchase agreements (vPPA)[3] , energy attribute certificates (EACs)[4], or a combination of these.

What are the differences between RECs and Carbon Offsets?

Carbon offsets represent a metric ton of emissions avoided or reduced. RECs represent one megawatt-hours of renewable electricity generation. RECs are measured in MWh while carbon offsets are measured in metric tons of CO2. Carbon offsets come from projects that reduce greenhouse gas emissions, increase carbon sequestration, or help remove greenhouse gas from the atmosphere.

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How are RECs tracked (i.e. what keeps a generator from selling a REC to two parties)?

There are two accepted approaches for tracking RECs: the certificate-based tracking system and the contract-path tracking method.

The certificate tracking systems are typically electronic databases that register basic information about each megawatt-hour of renewable generation in a specific geographic region and assign a unique identification number to each REC. This ensures that only one REC is issued for each MWh of generation reported and can only be in one tracking system account at a time. RECs can be transferred from one account holder to another, similar to how currency is transferred within our online banking system.

The contract-path method of tracking RECs is widely used and is the oldest method utilized in the market. The contract-path approach consists of a third-party audit supported by declarations, sworn statements, contract receipts, and other proof of generation and transfer of ownership to the ultimate end consumer. Metered generation data is often used to support this transaction.

Why should a customer invest in on-site solar instead of or addition to buying RECs?

On-site generation de-risks future climate commitments and reduces reliance on traditional fossil fuels. Relying solely on purchased RECs can expose an organization to potential supply chain risks, price fluctuations, and uncertainties related to the availability and quality of RECs. Investing in on-site solar directly contributes to increasing the supply of renewable energy and lowers greenhouse gas emissions.

What is a vPPA?

A virtual power purchase agreements (vPPAs) is a purely financial transaction, exchanging a fixed-price cash flow for a variable-priced cash flow and renewable energy certificates (RECs).

How does on-site solar differ from off-site vPPA?

The primary differences between on-site solar and a vPPA[3] are the location of the renewable energy generation, and exposure to wholesale power market volatility. On-site solar involves installing renewable energy systems directly on the company's property, while a vPPA involves purchasing renewable energy from an off-site project. An organization that invests in on-site solar benefits from energy cost savings, tax credits, and REC generation.

On-site solar generally offers more direct control over the energy generation process, fewer intermediaries, and a lower degree of exposure to external risks like counterparty issues or regulatory changes. In addition, on-site solar visibly demonstrates a commitment to sustainability and serves as an educational opportunity for employees, clients and community at large.

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What are the risks taken with a vPPA?

For vPPAs to offer price stability and positive economics the agreed-upon price must be lower than future energy market prices. If energy prices drop during the contract term, the organization may end up paying more for renewable energy compared to procuring energy from the grid.

The economics of a vPPA can also be affected by changes in government policies, incentives, or regulations that impact renewable energy markets. If regulatory shifts occur, they could impact the financial benefits and overall viability of the vPPA.

What are the ownership options for onsite solar RECs?

RECs reflect the sustainable generation attributes for onsite renewable projects.
REC ownership considerations reflect a trade-off between overall project cost and sustainability claims that can be made. There are three main options for REC ownership:

» Full monetization of RECs (no renewable power claims enabled; maximizes REC “revenue” stream): Sell all RECs generated by the system.

» Purchase replacement RECs (renewable power claims are enabled under current guidance; provides a smaller amount of REC “revenue”): Sell all RECs generated by the system and buy-back cheaper RECs (e.g., National Wind RECs).

» Keep original RECs (highly defensible renewable power claims; no REC “revenue”): Maintain the RECs generated by the system.

What is REC swapping?

For the purchase replacement REC option, Redaptive recommends our customers sell their RECs when they are above a certain price. Redaptive provides the option to secure ‘replacement RECs’ to support renewable energy purchasing goals. State level incentive programs support higher value REC swapping. For example, New Jersey RECs are 10x the value of a standard voluntary REC. REC Swapping options are designed to location and technology preferences.

What are the macro trends in the REC space?

There is a high probability that new regulations will require organizations to buy RECs within their same ISO region. The GHG protocol working group on Scope 2 emissions accounting is exploring a requirement for more stringent additionality criteria, which would require organizations to purchase higher quality (and more expensive) RECs.

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What is the difference between a bundled and an unbundled REC?

"Bundled" and "unbundled" are terms used to describe different ways of purchasing and using RECs in the context of renewable energy markets. When you purchase electricity from a renewable energy source (such as a solar power plant) directly from a utility or supplier, the RECs associated with that energy generation are usually bundled with the electricity itself. This means that when you buy renewable energy, you are also buying the corresponding RECs, and the environmental benefits of that renewable energy are attributed to your consumption.

Unbundled RECs, on the other hand, are separated from the actual electricity generation and can be sold or traded independently.

What kind of RECs should I buy?

There are several types of RECs based on the renewable energy source that generated the credit, the location, certification, and year of generation. Some Sustainability Protocols have specific criteria for RECs to validate their beneficial effects on the environment. Generally,

Purchasing a REC that was generated locally by a renewable energy source connected to the grid and has been properly tracked (to avoid double-counting) is the best way to support local renewable projects and create a positive impact in your area. Purchasing a REC that achieves additionality ensures that your company is promoting a more sustainable world by actively displacing fossil power.

How do RECs fit into the services offered by Redaptive?

With a commitment to helping our customers reach their sustainability goals, Redaptive offers an ***on-site solar and REC bundle.*** Redaptive can supplement onsite generation with purchased RECs and energy reduction projects to meet your sustainability needs.

How much does a REC cost?

Redaptive receives daily price updates across all compliance and voluntary markets and has best-in-class access to multiple varieties of RECs. While prices have historically been stable, there have recently been periods of significant supply and demand imbalance, typically driven by major global events. For example, recent United Nations Climate Change conventions have seen REC prices double over a period of weeks, and price spikes are not uncommon.

How does pricing of voluntary RECs fluctuate? What influences this?

Pricing fluctuates based on the balance between supply and demand. Other factors that determine the pricing of RECs are geography, technology type and the year of generation (“vintage”). Changes in policy and government incentives can also influence REC pricing dynamics over time.

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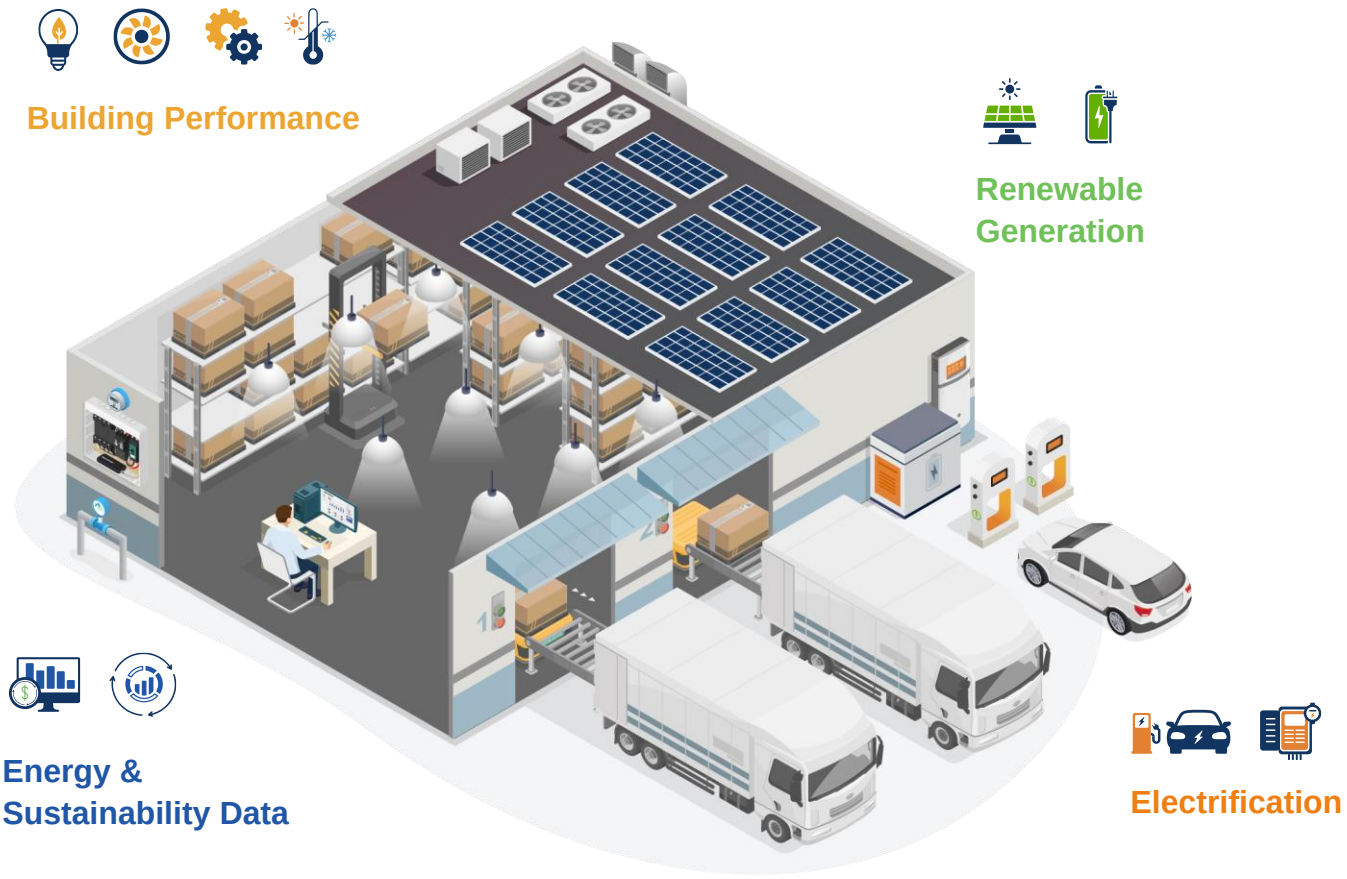
Your turnkey solution to achieving building resilience

Redaptive simplifies the complexity, providing fully funded, end-to-end energy and sustainability solutions with data verification. We enable customers to accelerate optimization and achieve a more resilient building portfolio with positive operational impacts.



[1]Carbon offsets: A carbon offset broadly refers to a reduction or removal of emissions of carbon dioxide or other greenhouse gases made in order to compensate for emissions that occur elsewhere.

[2]Green tariffs and green power programs: Green tariffs are programs in regulated electricity markets offered by utilities that allow customers to buy both the energy and associated renewable energy credits from a large-scale renewable energy project.

[3] Virtual power purchase agreements (vPPAs): A vPPA is a purely financial transaction, exchanging a fixed-price cash flow for a variable-priced cash flow and renewable energy certificates (RECs).

[4]Energy attribute certificates (EACs): An EAC is the official documentation to prove renewable energy consumption. Each EAC represents proof that 1 MWh of renewable energy has been produced and added to the grid. A renewable energy credits (REC) is a type of EAC.

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