

Renewable Energy Certificate Market Assessment, By Energy Type [Solar Energy, Wind Power, Hydro-electric Power, Others], By Capacity [0-1000 KWh, 1100-5000 KWh, More than 5000 KWh], By End-use [Compliance, Voluntary], By Region, Opportunities and Forecast, 2018-2032F

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Report description:

Global renewable energy certificate market is projected to witness a CAGR of 27.13% during the forecast period 2025-2032, growing from USD 20.82 billion in 2024 to USD 142.02 billion in 2032.

A REC is a market-based instrument, which represents proof that one megawatt hour of electricity has been generated from renewable energy sources supplied into the power grid. The REC mechanism is designed to foster the generation of renewable energy and help in compliance with RPOs, or Renewable Purchase Obligations which are mandates upon utilities to source a certain percentage of their energy from renewable resources.

The Renewable Energy Certificate (REC) market is witnessing substantial growth due to several factors, such as government regulatory requirements like Renewable Portfolio Standards (RPS) in many areas that require utilities to obtain a metric of energy from renewable sources, leading to a demand for Renewable Energy Certificates. Corporations also make a major contribution to this demand, as they engage in numerous activities to achieve sustainability objectives and net zero emissions requirements set by governments and higher authorities. These kinds of pressure make them purchase the RECs as a way of offsetting their emissions.

Moreover, consumers' support for greener brands is increasing, and they are demanding more eco-friendly products to reduce carbon emissions, which encourages companies to buy RECs to bolster their green credentials. Also, the surge in renewable energy installations such as wind and solar has expanded the supply of RECs, further stabilizing prices and making them more accessible.

Furthermore, technological advancement in blockchain and the use of digital platforms have improved the efficiency and ease of conducting REC transactions, allowing the participation of multiple sectors.

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For instance, in December 2024, Powerledger's TraceX marketplace for renewable energy certificates (RECs) introduced a Counter-Offer feature, allowing for negotiations on REC prices. This innovation enables buyers and sellers to discuss and agree on prices for sell orders, moving away from fixed pricing models.

In July 2024, Powerledger introduced a new feature in its TraceX marketplace, allowing organizations to purchase Renewable Energy Certificates (RECs) directly from renewable energy generators. This eliminates the need for businesses to open their registry account or go through intermediaries. The new feature provides a clearer understanding of the origins and costs of RECs, reducing the transparency of buying through intermediaries.

Renewable Portfolio Standards is Acting as a Catalyst for REC Market Growth

As the world shifts towards clean energy sources, regulatory requirements such as Renewable Portfolio Standards (RPS) emerge as key factors in developing the Renewable Energy Certificate (REC) market. The concept of RPS obligates a certain proportion of electricity providers to obtain energy from renewable sources such as wind, biomass, and solar energy. This push will consistently sustain the demand for Renewable Energy Certificates. These certificates are issued when renewable energy is consumed and fed into the network.

As of December 2024, over 50% of all states in the United States have Renewable Portfolio Standards (RPS) programs, which have tremendously increased electricity generation from renewable sources. These requirements also encourage investment in renewable technologies and provide a mechanism for local utilities (IoUs) to meet their obligations. This organized framework fosters competition among different forms of renewable technologies, making them cheaper and encouraging their development. Moreover, the stable and predictable nature of RPS provides the safety and security needed to plan and invest in renewable energy projects over the long term.

By establishing deadlines and goals, these regulatory requirements also ensure that utilities and corporations meet their pledges about renewable energy, strengthening the move towards achieving a cleaner energy environment.

For instance, in January 2023, the states that adopted renewable portfolio standards increased the wind generation capacity, with an average increase of 600 to 1,200 megawatts (MW).

Technological Innovations are Transforming the Renewable Energy Certificate Market

Technological advancements are playing a crucial role in the growth of the Renewable Energy Certificate (REC) market, particularly through innovations like blockchain and enhanced data analytics. Blockchain technology offers a secure and transparent way to track RECs throughout the supply chain, ensuring authenticity and preventing issues like double counting or fraud. By using a decentralized ledger, blockchain allows real-time recording of transactions, which builds trust among participants and reduces the need for intermediaries, ultimately lowering costs.

Moreover, improvements in data analytics facilitate better price discovery and market forecasting, making it easier for buyers and sellers to navigate the REC landscape. Online trading platforms enhance transaction efficiency, increasing accessibility for all stakeholders. For example, platforms like Power Ledger's TraceX simplify the buying and selling of RECs, connecting renewable energy producers with potential buyers.

These technological innovations not only boost efficiency and transparency but also enhance confidence in the REC market. As more companies recognize these benefits, participation in renewable energy solutions is likely to rise. Consequently, the REC market is expected to experience significant growth driven by these advancements that support sustainability efforts.

Compliance Segment is Dominating the Renewable Energy Certificate Market Share

Due to the diverse compliance regimes established by governments in different countries around the globe, the compliance segment is dominating the Renewable Energy Certificate (REC) market. These frameworks require utilities and large companies to fulfill certain renewable energy obligations, which in turn compel them to purchase a specified number of RECs within a given year. Such laws create a guaranteed market for RECs, as firms seek to comply with Renewable Portfolio Standards (RPS) or similar policies that have been established to increase the levels of renewable energy.

Additionally, the increasing focus on environmental sustainability has led many industries to adopt rigorous compliance measures. Companies have now started facing environmental constraints which say that they need to use clean energy or else they need to buy RECs to substantiate their emissions. Sustainable development is becoming increasingly important for individuals and businesses, further increasing the demand for compliance related RECs.

Moreover, as renewable energy technologies become more economically viable and accessible over time, the potential for these

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resources to be included in the energy mix also increases. The combination of regulatory forces and market elements makes the compliance segment well-suited for further growth in Renewable Energy Certificates (RECs). Consequently, this segment is expected to continue expanding as governments reinforce their commitments to renewable energy and climate goals. For instance, in August 2023, Tata Power announced its commitment to fulfill its Renewable Purchase Obligation (RPO) by acquiring RECs to meet regulatory requirements. The company aimed to source 100% of its energy from renewable sources by 2024, which necessitated significant REC purchases to comply with state mandates.

North America Dominates Renewable Energy Certificate Market Share

A renewable energy certificate (REC) is a green certificate issued for the generation of a unit of renewable energy. North America has dominated the REC market due to several key factors. The region has a conducive regulatory environment, and many states have renewable portfolio standards (RPS). Most of these regulations require utilities to buy a certain percentage of their energy from renewable sources, creating a substantial demand for RECs to ensure compliance.

Additionally, big corporations such as Tesla, Microsoft, and Google, which actively purchase RECs to meet their sustainability goals, further strengthen this market. These companies are focused on cutting carbon emissions and boosting their corporate responsibility profiles, which raises the market demand for both compliance and voluntary RECs.

Moreover, North America has developed the capacity for developing renewable energy, such as solar and wind power, which helps in the increasing supply of RECs. The combination of regulatory mandates, corporate sustainability initiatives, and a high capacity of renewable energy supply which positions North America as a dominant force in the REC market, with expectations for continued growth in the coming years as more entities seek to meet their renewable energy targets.

Future Market Scenario (2025 – 2032F)

□□Regulatory frameworks for Renewable Energy Certificates (RECs) are likely to change and may become more stringent in the future. New policies that require a greater percentage of energy to come from renewable sources will directly impact the demand for RECs. As countries commit to achieving net-zero emissions, government actions may increase, potentially leading to minimum price support for RECs or new incentives designed to promote renewable energy projects. This shift could significantly influence the REC market operation and growth in the coming years.

□□Technological improvements in renewable energy such as more efficient solar cells, better wind turbine designs, and innovative bioenergy solutions are anticipated to enhance production efficiency and reduce costs. This trend may result in a greater supply of Renewable Energy Certificates (RECs), which will impact on market prices and strategies.

□□The demand for more specialized and niche Renewable Energy Certificates (RECs) is expected to rise as consumers and companies look for greater clarity in their environmental impact claims.

Key Players Landscape and Outlook

Continuous innovation characterizes the landscape of renewable certificate globally, with key players striving to enhance their offerings and maintain competitive advantages. The market prognosis remains positive, fueled by increasing regulatory mandates like Renewable Portfolio Standards (RPS) and a surge in corporate sustainability commitments. As businesses aim to meet ambitious renewable energy targets, the demand for RECs will likely rise, encouraging innovation and collaboration among market players.

For instance, in February 2023, Shizen Energy Inc. launched a new service to provide renewable energy certificates, including non-fossil certificates with tracking, in line with international sustainability standards like RE100 and CDP. The service will be provided in Japan, internationally, and more than 50 countries.

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