

Blockchain in Energy Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 -2034

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Abstracts

The Global Blockchain In Energy Market was valued at USD 3.1 billion in 2024 and is projected to grow at a CAGR of 41.6% from 2025 to 2034. This growth is driven by the increasing application of distributed ledger technology (DLT) in optimizing, securing, and decentralizing energy systems. Blockchain offers a transparent, tamper-proof method for tracking energy transactions, including renewable energy certificates (RECs), carbon credits, peer-to-peer energy trading, and grid management. This technology enhances operational efficiency, reduces reliance on intermediaries, and fosters innovation, particularly in renewable energy integration, energy storage, and decentralized energy networks.

The increasing digitization of energy systems, combined with the global rise in smart meter adoption, is expected to drive widespread blockchain implementation. Additionally, the expansion of renewable energy sources (RES), supported by energy sector privatization and government initiatives aimed at conserving electricity, will further encourage blockchain integration in energy management. These developments enable more efficient energy tracking, improved grid reliability, and streamlined operations, creating a favorable environment for blockchain adoption in the sector. The blockchain in energy market is categorized into public and private segments. The private segment is anticipated to experience substantial growth, generating USD 54.4 billion by 2034. This growth is driven by the need for heightened security, faster transaction speeds, and greater control over data. The demand for blockchain solutions that provide secure, authorized access and control over sensitive information will be a key factor in this segment's expansion. Additionally, the growing shift toward transparent, tamper-proof solutions that meet regulatory and sustainability requirements will create lucrative opportunities for the blockchain market.

In terms of application, the blockchain in energy market is divided into power and oil &



gas. The power sector is expected to grow at a CAGR of 43% by 2034, driven by lower transaction costs and improved network transparency. The demand for peer-topeer (P2P) energy trading platforms, which allow consumers and producers to exchange energy directly without intermediaries, will help reduce costs and increase energy access, especially in underserved areas. The continued digitalization of the power sector will also drive blockchain adoption, ensuring the security of sensitive data related to grid operations and energy markets.

U.S. blockchain in energy market is expected to generate USD 13 billion by 2034. The growing adoption of distributed energy resources (DERs), such as solar, wind, and battery storage, will increase the demand for secure, decentralized platforms to manage these assets. The shift towards renewable energy in regions like California and New York will further promote blockchain integration, reducing transaction costs and facilitating direct energy exchanges between consumers and producers.



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