

The role of blockchain in Africa's energy transition

Blockchain is expected to play an essential role as African countries transition towards a distributed, digitised, and decentralised power system.



Chanda Nxumalo, director, Harmattan Renewables

The increasing volumes of embedded renewable generation, such as wind and solar PV, have led to a reduced reliance on centralised power sources and energy grids. In doing so, this has the potential to increase grid reliability as well as make small-scale renewable power sources a viable alternative to the ageing power fleets that many African countries battle to maintain.

“Legacy systems are being overhauled, with energy companies implementing more reliable and advanced digital systems, particularly to improve operational efficiency and security,” says Chanda Nxumalo, director at Harmattan Renewables.

This is where advances in digital technology can be harnessed to help utilities better manage their energy needs through the optimisation and digitisation of systems, as well as through the deployment of blockchain technology. Nxumalo says that blockchain, for example, enables more secure management of energy data while meeting the energy needs of smart cities of the future.

She points out that blockchain will play an instrumental role in the global transition to renewable energy which will lead to more efficient responses that will ultimately allow for optimal energy management. “Blockchain has a number of strengths

that really give it tremendous value within the renewable energy sector, including disintermediation, security, transparency and automation.”

She says that the increasing exchanges between different parts of the power network have made central management and operation challenging. “Blockchains could help address some of the challenges that decentralised energy systems face, especially to securely store digital transactions without using a central point of authority. More importantly, they allow for the automated execution of smart contracts in peer-to-peer (P2P) networks.”

5G deployment

The renewable energy sector remains optimistic about the deployment of 5G, which will work to support diverse vertical applications by connecting heterogeneous devices and machines with significant improvements to the quality of service, increased network capacity and enhanced systems.

She says that this is where 5G compliments the integration of blockchain technology into smart grids. “It works to support data security, as more types of data and information are communicated wirelessly between sensors, devices and instruments. Increased digitisation as a result of 5G will lead to an acceleration of automation too.”

Nxumalo was one of the speakers at the [Solar Power Africa 2020](#) virtual conference.

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