Blockchain in the energy sector

ElectriCity
16 may

Blockchain 101

Decentralisation of trust to enable "frictionless" value flows with no intermediaries

Distributed ledger
Every participant in the network has simultaneous access to a view of the information

Cryptography
Integrity and security of the information on the blockchain are ensured with cryptographic functions

Consensus
Verification is achieved by participants confirming changes with one another, replacing the need for a third party to authorise transactions

Challenges in the energy sector

Benefits of using Blockchain technology

Decarbonization
- how do we ensure a lower carbon footprint?

Digitalization & IoT
- how do we successfully benefit from increased connectivity?

Increased competition and reduced margin
- how do we stay relevant in an increased competitive market?

Democratization
- how can we capitalize on P2P and prosumer era?

Regulation & Policy
- *how do we address added regulation & policy risks?*

New business models
- flexibility and scalability

New positioning
- find new market positions

Reduction of transaction costs
- integration of previously separate steps, e.g. market-making function, contracting, transaction confirmation, payment

Increase of operational efficiency
- slimmer market models with no or less intermediaries

Security
- decentralized systems are less vulnerable than centralized servers

Blockchain is applied in various energy cases; from P2P trading to crowdfunding of assets

P2P retail
Trading between prosumers and consumers

kWh-based transactions between owners of renewable energy assets and their neighbors
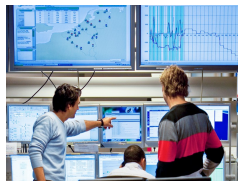
Building local marketplaces

P2P wholesale
Trading between energy companies

Direct settlement of energy trading contracts between energy companies

Optimization of front- and back-office processes

Grid balancing
Auto-balancing of small-scale power grids

Automatic aggregation of prosumers, consumers and storage in a microgrid.

Smart contracts match supply and demand

E-mobility-Platforms
supporting sharing and charging electric cars

Automatic matching of E-car drivers with owners of e-car storage stations

Faster settlement and better forecast of grid usage

Certificates of origin
for renewable energies

Certify the origin of renewable energies generation

Blockchain records the provenance and automatically tracks the ownership of renewably generated electricity

Tokenization of renewable energy assets

Blockchain-based tokens reflect properties of grid assets (e.g. grid status) or can be used for crowd-funding of renewables assets

PwC & ElectriCity

- *evaluating the benefits of blockchain in the energy ecosystem*

Discover:

- Discover blockchain based research business models focused towards energy sector

Learn:

- Take the opportunity to learn and understand the technology behind blockchain & play PwC blockchain game
- Learn how to go from an idea to implementation

Create:

- Create real use cases for the application of blockchain
- Create new solutions to existing challenges

How do we become more digital in the energy sector by successfully using blockchain?

Objective during the day

Going forward

PwC will continue to work closely with ElectriCity in developing tomorrows energy ecosystem

Partnership

Ongoing and continues partnership to establish discussion, learning & exchange of ideas, in order to build tomorrows critical business models & ecosystems

Future of Energy

Purpose is to bring together key market players in the energy sector to gain insights and build new partnerships and business models during a 12 week period

Thank you!

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https://www.pwc.se/sv/blockchain