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Elia, SettleMint and Actility launch one of Europe's first blockchain pilot projects in the energy sector

- The proliferation of decentralised energy sources is creating new challenges
- The aim of the pilot project is to analyse possible applications of blockchain technology in the energy sector

BRUSSELS - Elia is launching a pilot project to analyse possible applications of blockchain technology in the energy sector. The increase in renewable energy generation is making it increasingly difficult for transmission system operators (TSOs) to guarantee that generation and consumption are balanced at all times. Power generation from renewables fluctuates constantly, so flexible reserves that can be activated swiftly (like batteries, demand management via heat pumps, etc.) are needed to ensure a steady balance. Elia is exploring the opportunities offered by blockchain technology as a payment system to address the business side of such complex, rapid transactions. The pilot project, conducted together with SettleMint and Actility, will last three months.

BLOCKCHAIN

Blockchain is a distributed, digital transaction technology that enables secure data storage and makes it possible to execute smart contracts in peer-to-peer networks. Its intrinsic characteristics (it is unalterable, transparent and secure) also make it easier to automate contract execution.

Since the technology's capabilities are steadily expanding all the time, blockchain and smart contracts could help to manage multiple sources of flexibility automatically. In future, this technology could profoundly change how the energy sector operates by being applied to different levels of the market (short-term requirements, ancillary services, and so on).

BACKGROUND

The development of decentralised energy sources and the gradual disappearance of traditional sources of flexibility are forcing Elia to enter into relations with new market players to guarantee that the Belgian electricity grid remains balanced. The growing number of market participants is opening up many opportunities, but also creating challenges, such as the dramatic increase in the number of multi-party transactions.

In recent years, Elia has been one of Europe's most active players in integrating demand-side management to boost flexibility. While it has so far focused on ways of managing large-scale demand (for industrial processes and SMEs), the role played by decentralised generation is set to increase in the years to come.

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THE PILOT PROJECT

The aim of the current pilot project is to test blockchain's suitability for automating a number of processes related to activating flexibility. The processes under scrutiny include validating contractual links between Elia and the participating actors, recording and validating assets' metering data and settling the associated financial operations. To this end, together with its partners Actility and SettleMint, Elia intends to develop a decentralised flexibility management solution based on blockchain and developed by the Energy Web Foundation, of which Elia is an affiliate.

For the purposes of the trial, Elia and Actility will perform multiple simulations to understand how blockchain technology works and also test its limits. Among the various hypotheses to be tested, Elia will seek to understand the extent to which blockchain can serve the widespread use of decentralised flexibility and how it can accelerate and simplify activation processes and make them more transparent.

If this pilot project proves successful, it will constitute a major step forward towards establishing a Belgian electricity grid that offers a wide variety of decentralized and sustainable energy sources. Elia hopes that introducing a new technology such as blockchain will facilitate the adjustment of balance management in the energy sector which should be beneficial for all market players.

THE PARTNERS

Actility is a unique technology company that provides IoT infrastructure solutions and intelligent smart energy solutions. It is also a leading player in the flexibility market, involved in grid-balancing services in several countries. (<https://www.actility.com/>)

SettleMint is a European leader in blockchain technology. Its aim is to bridge the gap between businesses' capabilities and their desire to use blockchain to innovate in a rapidly changing world. (<https://settlemint.com/>)

Actility and SettleMint have formed a partnership to pool their expertise in energy and blockchain technology. This partnership is helping them understand the role played by each stakeholder in Elia's pilot project.

The Energy Web Foundation (EWF): Energy Web is an open-source, scalable blockchain platform specifically designed for the energy sector's regulatory, operational and market needs. It serves as a foundational, shared, digital infrastructure for the energy and blockchain community to build and run their solutions. Elia is a founder member of the EWF. (<https://energyweb.org/>)

For more information on this project and other initiatives taken by the Elia Innovation team, see <https://innovation.elia.be/> and subscribe to the newsletter.



About the Elia Group



ONE OF EUROPE'S TOP FIVE PLAYERS

The Elia Group is active in electricity transmission. We ensure that generation and consumption are balanced around the clock, supplying 30 million end users with electricity. With subsidiaries in Belgium (Elia) and north-west Germany (50Hertz), we operate 18,600 km of high-voltage connections. As such, our group is one of Europe's top 5. With a reliability level of 99.999%, we give society a robust power grid, which is important for socio-economic prosperity. We also aspire to be a catalyst for a successful energy transition ensuring a reliable, sustainable and affordable energy system for the future.

WE MAKE THE ENERGY TRANSITION HAPPEN

By expanding international high-voltage connections and integrating ever-increasing amounts of renewable energy generation, the Elia Group promotes both the integration of the European energy market and the decarbonisation of our society. The Elia Group is also innovating its operational systems and developing market products so that new technologies and market parties can access our grid, thus making the energy transition happen.

IN THE INTEREST OF SOCIETY

As a key player in the energy system, the Elia Group is committed to working in the interest of society. We respond to the rapidly changing energy mix, i.e. the increase in renewable energy, and constantly adapt our transmission grid. We also ensure that investments are made on time and within budget, with a maximum focus on safety. When we carry out our projects, we manage stakeholders proactively by establishing two-way communication with all affected parties very early on in the development process. We also offer our expertise to our sector and relevant authorities to build the energy system of the future.

INTERNATIONAL FOCUS

In addition to its activities as a transmission system operator, the Elia Group provides various consulting services to international customers through its subsidiary Elia Grid International (EGI). Elia is also part of the Nemo Link consortium that is building the first subsea electrical interconnector between Belgium and the UK.

The Group operates under the legal entity Elia System Operator, a listed company whose core shareholder is the municipal holding company Publi-T.

www.elia.be/www.eliagroup.eu

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