

September 2023

ENERGY COIN MARKET SDT₁

RESEARCH AND DEVELOPMENT CENTRE
FUTURE SOLUTIONS

**LAB
ONE**

IN THE ESSENCE

WHITE PAPER

Imagine an innovative energy ecosystem based on renewable energy production, hydrogen technology and the blockchain.

An ecosystem where energy belongs to all of us, and surpluses generated on sunny or windy days can be stored as green hydrogen and used as a reserve supply.

An ecosystem where each and every one of us may actively influence the global energy sector by dispersing generation sources and basing consumption on principles of prosumerism, founded on the principle of Win-Win.

See a system resilient to transmission-related failures or global blackouts, inflation or dwindling natural mineral resources

An ecosystem that will change the perception of energy by offering unprecedented means of use and, most importantly, an ecosystem that applies zero-emission technology to significantly improve the ecological situation facing the planet and help decarbonise everyday life.

**THIS IS THE ENERGY COIN MARKET ECOSYSTEM
THE LAB ONE PROJECT IS ONE OF ITS MOST IMPORTANT COMPONENTS.**



But, first things first:

You've probably heard a lot about renewable sources and how to obtain them – for instance, photovoltaic or wind farms – but have you heard about hydrogen how it could be used?

Renewables can't provide a constant supply of energy because the wind doesn't always blow and the sun doesn't always shine, but if we convert the surplus energy generated on windy or sunny days into hydrogen, the gas can act as a battery for storing energy, which we can then use when the supply of renewable energy is low or the demand is high. Hydrogen energy storage is crucial for the development of the renewable energy market and can cut costs as well as revolutionise the energy market. Hydrogen has a chance to become an important part of the energy mix. We are confident that this is one of the most promising solutions on the low-emission energy market that will be easier to achieve climate neutrality.

Hydrogen cells produce electricity via the chemical transformation of water and oxygen, when hydrogen is produced from water in the process of electrolysis. Once used for space exploration, nowadays we use it more commercially – for example, for vehicles, heating or electricity. Therefore, the Future Solutions Research and Development Centre, whose mission is to work on the application of hydrogen technology in energy systems, decided in cooperation with the Energy Coin Market to build a modern research and production unit called LAB ONE.

THE CONCEPT

LAB ONE is conceptualised to become a modern production and research centre based on innovative zero-emission energy production and processing technology located in Gniewino, Poland. The area designated for the construction of LAB ONE covers 30,100 m². On this site, Future Solutions R&D Centre plans to build a research and technology park, an electricity production complex in the form of a photovoltaic farm connected to an electrolyser system, and a green hydrogen storage warehouse. The LAB ONE building will be supplied with heat and electricity through a cogeneration process generated via a hydrogen cell a stack. All processes at LAB ONE will be managed by a proprietary IT tool called e-Vision, which is also a component of Future Solutions' business model.

Individual components of LAB ONE:

- **Photovoltaic farm** - A photovoltaic farm located at the research center will be responsible for energy generation at LAB ONE. The generation capacity is initially estimated at 1.92 MW, consisting of

approximately 3,564 modules. The production panels used will be fitted with the BIFACIAL technology (double-glazed). The Future Solutions Research and Development Centre is currently working on ways to maximise the production capacity.

- **Production system** - LAB ONE's main operating area is designated to the production of green hydrogen and research on related technology. For this purpose, Future Solutions R&D Centre decided to use the proprietary Solaris Hydrogen system H2 model, whereby the energy generated by the photovoltaic farm will be converted into green hydrogen by an electrolysis unit. The resulting gas will be compressed and stored (CGH2) in composite tanks designed specifically for this purpose.

The Future Solutions Centre analyses the available electrolysis system options that may be used for the Solaris Hydrogen H₂ concept based on e-Vision process management. These include alkaline water electrolysis systems and modular PEM (polymer proton exchange) electrolysis systems using pure deionised water. The main components of the analysis are the efficiency and lifetime of the system relative to the generation capacity initially estimated for the farm.

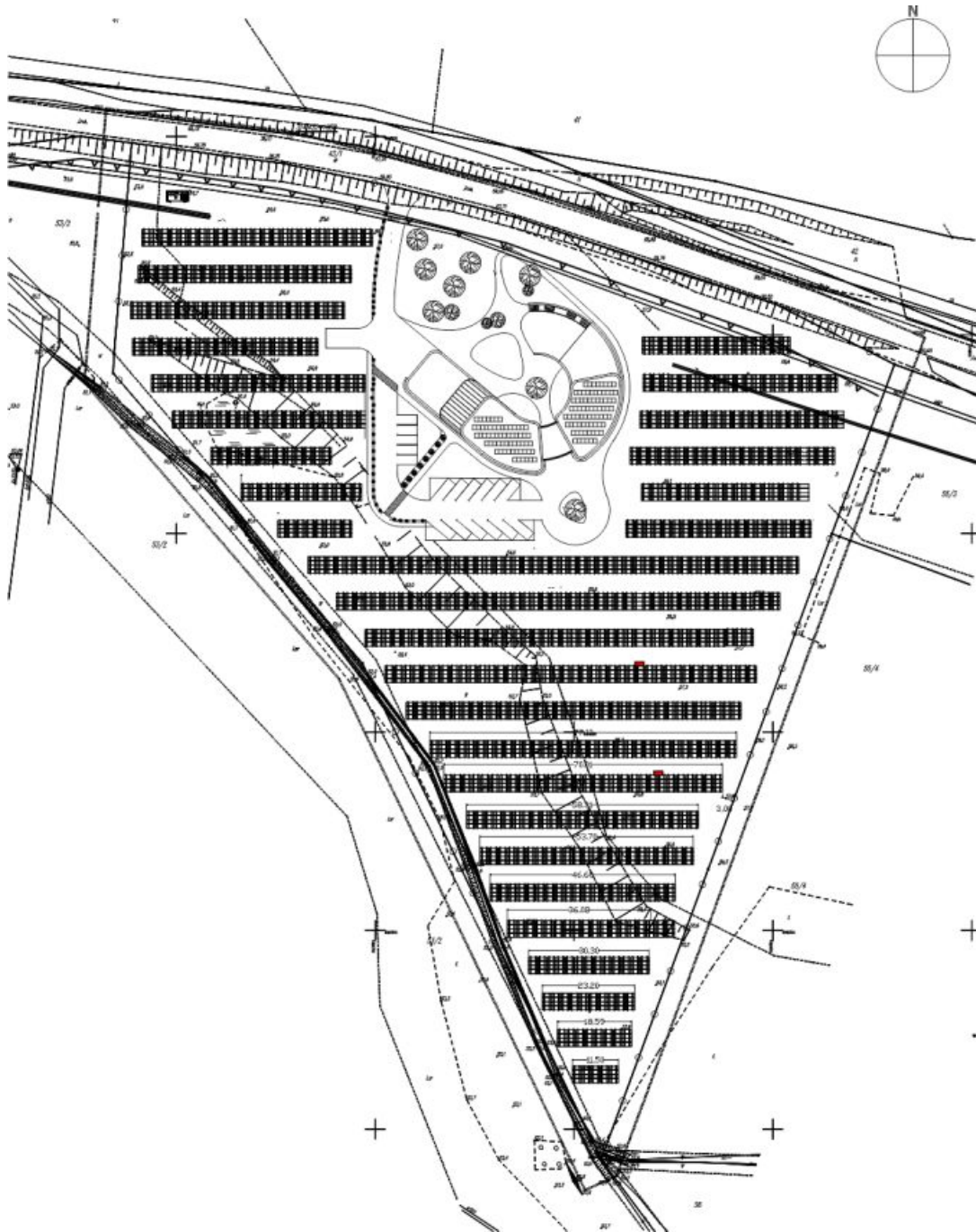
- **Laboratory** - LAB ONE Research and Development Centre has been initially estimated to cover 1.5 thousand m². The building will be powered by photovoltaic farm power plants and a fuel cell stack processing green hydrogen produced at LAB ONE itself.

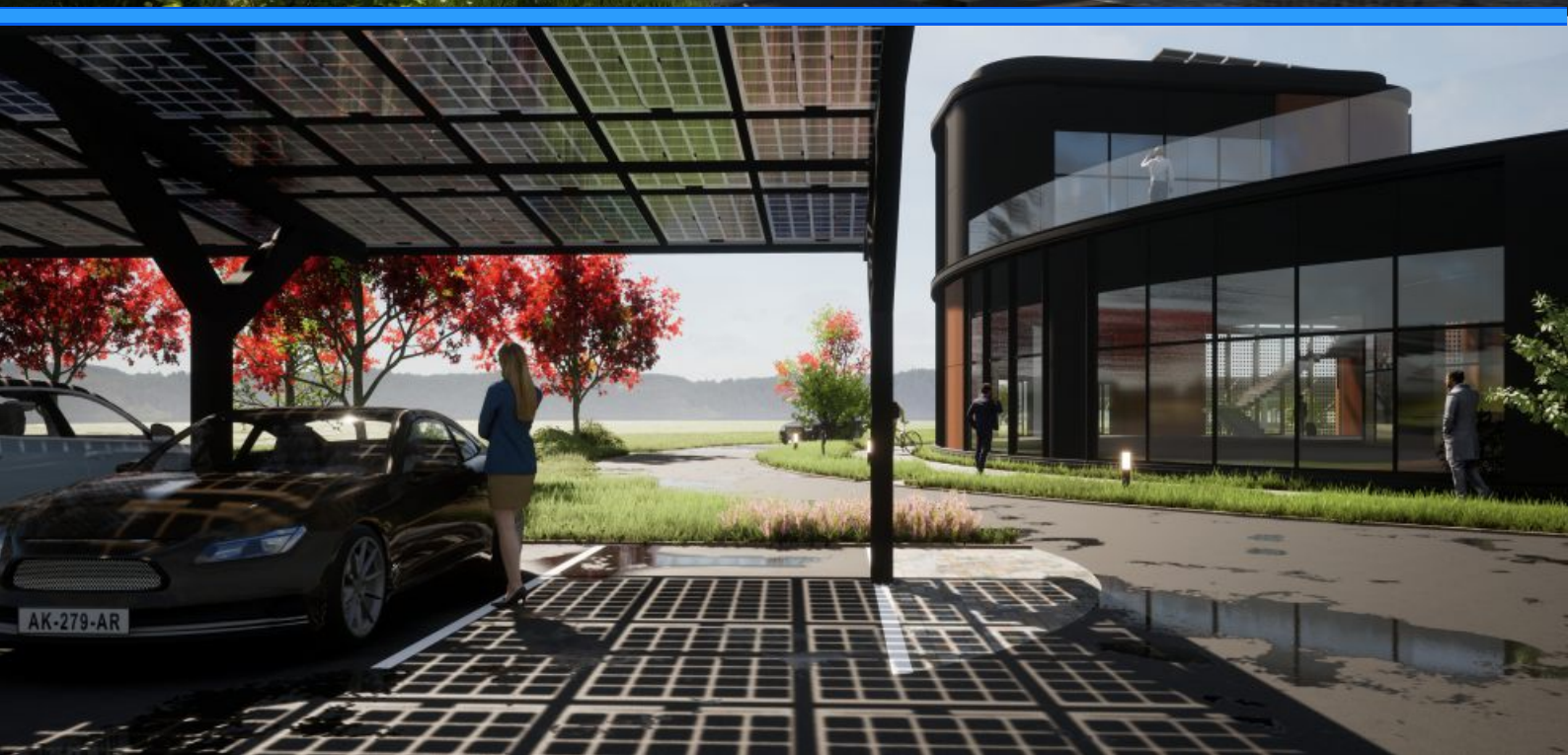
The thermal energy needed to heat the building will be generated via a cogeneration process in a fuel cell stack. In addition, a gas co-generator will be installed in the centre, which will test the possibility of mixing hydrogen with gas supplied from the municipal gas mains and the combustion process. The entire system will be managed by the innovative e-Vision system to monitor the processes at LAB ONE. The centre will house offices, research laboratories, a training room and the centre's servers.

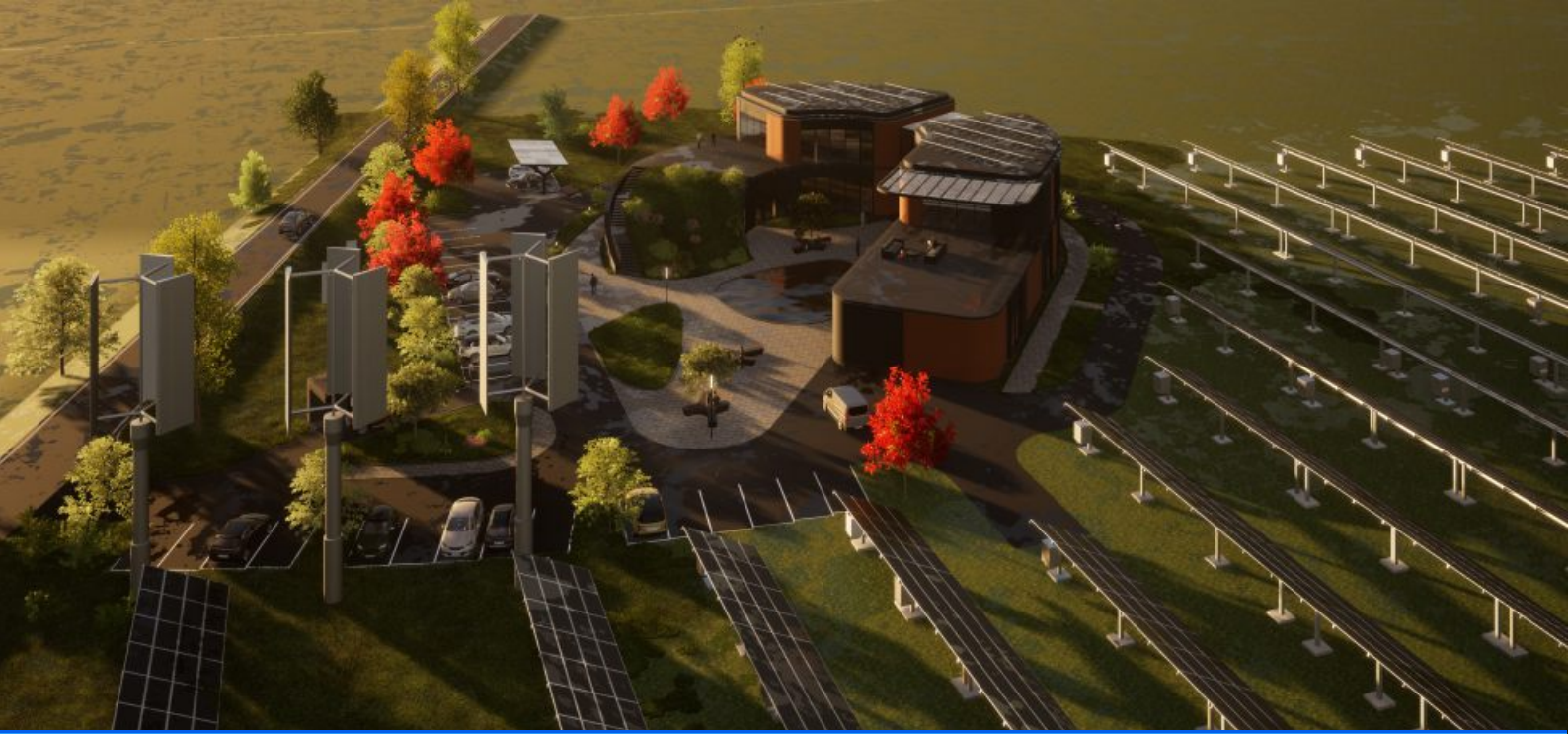
Future Solutions R&D Centre is looking into the possibility of adding other energy-generating devices to the construction of the LAB ONE laboratory. In order to maximise energy production, BIPV (Building Integrated Photovoltaics) technology will be used, which comprehensively integrates photovoltaics into building design. Accordingly, various photovoltaic will be incorporated such as window glazing, blinds, facades, skylights and glass heating sills. Parking spaces will also be covered with photovoltaic carport roofs, which perfectly combine aesthetics with functionality. These elements will complement the main generating unit - i.e., the photovoltaic farm.

The entire LAB ONE concept will be complemented by the building design to harmonise with the natural environment and to achieve a sense of community for the people working there through its architecture. To this end, work is underway to select a design studio.

The final major element of LAB ONE is its prosumer energy cluster. Contrary to the current energy system based on several main sources of energy generation and transmission to the end user, the SDT LAB ONE system offers decentralised production closely related to its use. This kind of network is called a local prosumer system. Multiplying such systems on a global scale can significantly change the energy market by creating a global prosumer energy system based on green energy.







Financing through tokenisation

This is where we all have an opportunity to actively build a modern power industry. The LAB ONE research and production unit will be financed via crowdfunding, namely tokenisation in an ITO (Initial Token Offering) process run by the ECM ecosystem. Purchasing an SDT₁ LAB ONE token conveys the right (in the form of a prepaid coupon) to energy generated by the Gniewino unit and the energy that Future Solutions R&D Centre obtains through participation in subsequent cluster systems. To put it simply, the energy obtained by LAB ONE will be distributed through an IT system based on smart contracts to all holders of an SDT₁ LAB ONE token. Details on the ITO project itself are included in the SDT₁LAB ONE White Paper.

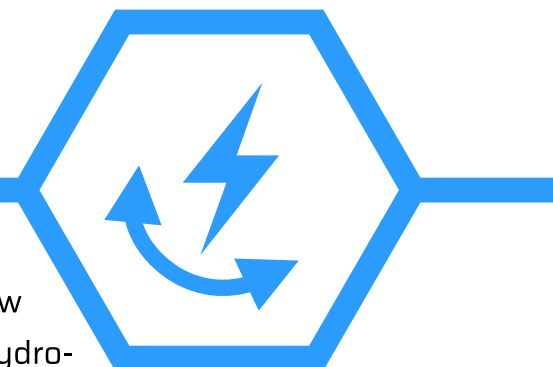
Unfortunately, due to its physical form, the energy cannot be divided up and physically received. Here is where IT technology comes to our assistance, specifically blockchain digital values. The energy generated in ECM systems will be expressed as an Energy Coin (EC) token. In order to correctly account for the generated energy, an EC token will represent a kilowatt-hour (kWh). This lets us determine the value of the energy produced, regardless of its form - electricity, thermal energy or green hydrogen - or even the country where it is produced and its traditional currency. The energy generated in ECM systems, which we all help create through financing in the form of SDT tokenisation programs expressed digitally as ECs (Energy Coins), opens up new ways of using it.

USE YOUR ENERGY TO BUY ANYTHING YOU WANT

To make this possible, the creators of the ecosystem have made a set of tools that help use energy in an unprecedented way.

TRON

Tron Energy Exchange Platform. This helps exchange the energy we generate for energy in another location. To illustrate how this works, imagine that you can charge or refuel your electric or hydrogen car in any location using the clean green energy you generate.



ECM STORE

ECM/STORE is a special area on the ecmarket.eu portal, where clients can use the energy they generate to purchase available services and products. This saves on intermediary fees and conversion costs. Customers will have an unprecedented opportunity to purchase any products they wish by exchanging them for green ecological energy. However, some users of the ECM ecosystem may wish to use the energy or generated value in a traditional way. For this purpose, Energy Coin Market has created a tool called:



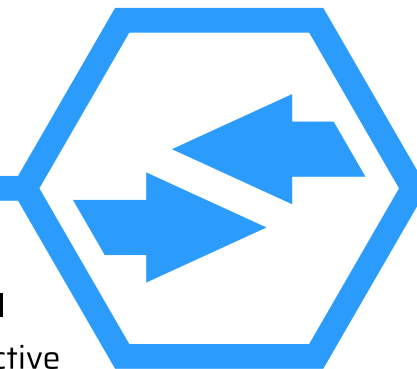
ECM / EXCHANGE

The ECM/EXCHANGE mechanism is not traditional in the sense that it exchanges energy for assets. Instead, it exchanges energy for traditional value expressed in the currency in which the client operates. When exchanging energy expressed as an EC token for traditional currency such as USD, the EC token is destroyed in a process referred to as 'burning'. In our times, energy is essential for the functioning of modern society. The current geopolitical situation as well as the limited quantity of energy deposits such as oil, gas or coal have resulted in price hikes. This, in turn, fuels inflation and slashes the standard of living for everyone. Therefore, Energy Coin Market offers the possibility to trade its electronic value - expressing energy produced and the installations that generate it - on the open market.



TRADING

The ECM ecosystem enables clients to trade their crypto assets (tokens) on selected global exchanges. The final operational element of the ecosystem involves giving more environmentally active users a synergetic mechanism with which to develop an ecosystem called SES.



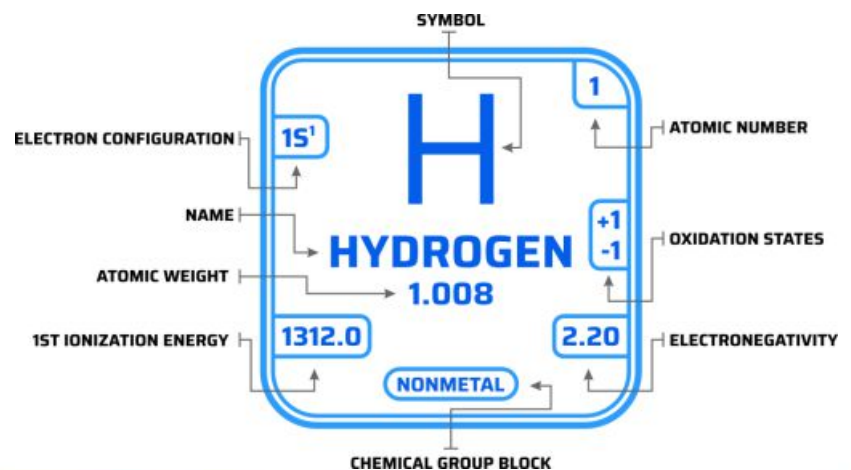
Clean ecological energy may be exchanged for tokens for future energy generation systems (SDT series). SES helps accelerate the development of the ECM ecosystem and enhances the benefits for the end user in the longer term. The lifetime of energy generation systems in the ecosystem is considerable and estimated at 15 years or more. Imagine a permanent vacation from having to buy energy. This is how ECM works, and the SES mechanism will significantly accelerate the achievement of this objective.

Plan for scholarships and grants

At Future Solutions Research and Development Centre we also strive to establish a system of annual scholarships and competitions for the best young talent. In this way we aim to demonstrate our appreciation for the student community who, through their work and commitment, will have an impact on the future of humanity. We decided to donate at least 1% of the profit obtained from generating green energy at Future Solutions LAB ONE for this purpose. With this in mind, a scholarship council will be appointed at the research center to decide on the exact form of the program and the topic of the competition. The council will also draft the relevant regulations.

In this way, we aim to select future potential employees for our centre and attract innovative technological ideas offering a fresh insight into the subject of our research. In consultation with ENERGY COIN MARKET, selected start-up projects will receive financial support.

Details at www.cbrfs.com



The future

Imagine energy-smart cities where every building, parking space, stadium, school, hospital or factory produces energy. Energy that doesn't harm the environment or threaten the planet or its inhabitants.

Imagine photovoltaic and wind farms, or rivers that produce clean energy for the benefit of all.

Imagine an ecosystem where the energy we generate belongs to all of us. An ecosystem where a surplus of energy generated on sunny or windy days is stored as green hydrogen and used when it is not produced.

See how decentralised power is resilient to transmission-related failures or global blackout failures. A system resistant to inflation or a lack of natural mineral resources. Imagine a new green economy based on energy you can use any way you want. Imagine an ECM ecosystem. Thanks to the research conducted by Future Solutions R&D Centre and the zero-emission technology applied there, the unprecedented use of blockchain solutions for Energy Coin Market has created an opportunity for everyone to create a modern, ecological energy industry.

www.ecmarket.eu





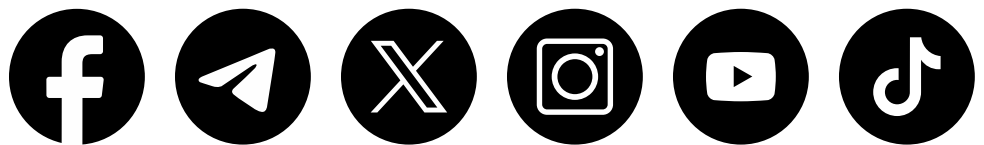
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