NRGcoin Smart Grid Demo

Lead Researcher: Roxana Rădulescu

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About

The NRGcoin smart grid is a blockchain-based support mechanism for efficient use of solar energy in private homes. This mechanism rewards the production and consumption of green energy in households better than the traditional high-risk renewable support policies; it offers more scalable revenue streams for green energy producers (= prosumers), cheaper green energy for consumers, and minimizes risks for investors. The NRGcoin tokens are similar to bitcoin as they are both decentralized and exchanged in an open currency market. However, while bitcoin consumes energy on computational power, NRGcoin injects renewable energy into the grid. The NRGcoin mechanism is beneficial for individuals, the environment, energy companies and policy makers. In addition, it does not generate maintenance costs.

How It Works

The demo shows a neighbourhood of 60 houses replaying real-life consumption data from a small town near Mechelen in Flanders. Six of these houses produce green energy using solar panels (prosumers). The other 54 houses are represented by two darker buildings (consumers). Only some of the houses produce energy, but all consume energy. The nearby spotlight, which simulates the day/night cycle, enables green energy production by prosumers. Energy production can be witnessed in real-time on the monitor. NRGcoins are traded locally in neighbourhoods and result in a more balanced energy flow. Each house has its own automatic trading agent that observes the market, independently learns and trades the coins. The agents consider user feedback on the maximum expenses on energy every month, temperature preferences in the house and so on.

Relevant technological information

The NRGcoin is a multi-agent system which relies on Machine Learning and automated trading strategy**.**

Impact

Commercial Benefits
Positive Ecological Impact
Positive Environmental Impact
Positive Societal Impact

Technology

Technology Readiness Level: 4-6
Interactive
Machine Learning

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