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Romanian gas and electricity market operator



Applying Blockchain technology in the Green Certificates Market

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Introduction

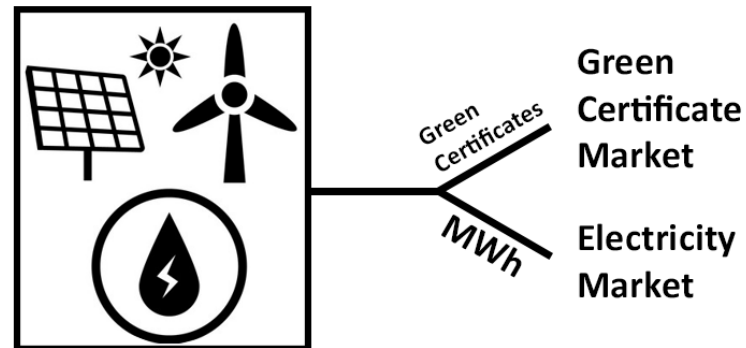
The main activities performed by OPCOM:

- Performs centralized electricity markets organization and administration activities;
- Performs the Settlement Administrator function by performing the settlement operations for Day-Ahead Market and Intraday Market
- **Performs the function of organizer and administrator of the Green Certificates Market;**
- Performs the administration activity of the centralized markets in the natural gas sector;
- Performs administered markets' surveillance;
- Collects and publishes the statistical market data, according to the provisions of the Energy Law.

How the green certificates market currently works in Romania

OPCOM – Green Certificates Market Operator – legal person which assures Green Certificates trading and determines the prices on the Centralized Green Certificates Market, performing the functions established by the Regulation for organizing and functioning of the Green Certificates Market.

Green Certificate – Title which attests the production of electricity renewable energy sources. Currently, each MWh of electricity is rewarded with a variable number of green certificates depending on the source.



How the green certificates market currently works in Romania

The Green Certificates' Value is determined by means of the OPCOM anonymous centralized market mechanisms.

The Green Certificates Market (GCM) is a competitive market, separated from the electricity market, where green certificates (GC) are traded. GCs are produced by electrical power plants which benefit or have benefitted from the GC promotion system instituted through law via renewable power sources.

(2) GCM has the following components:

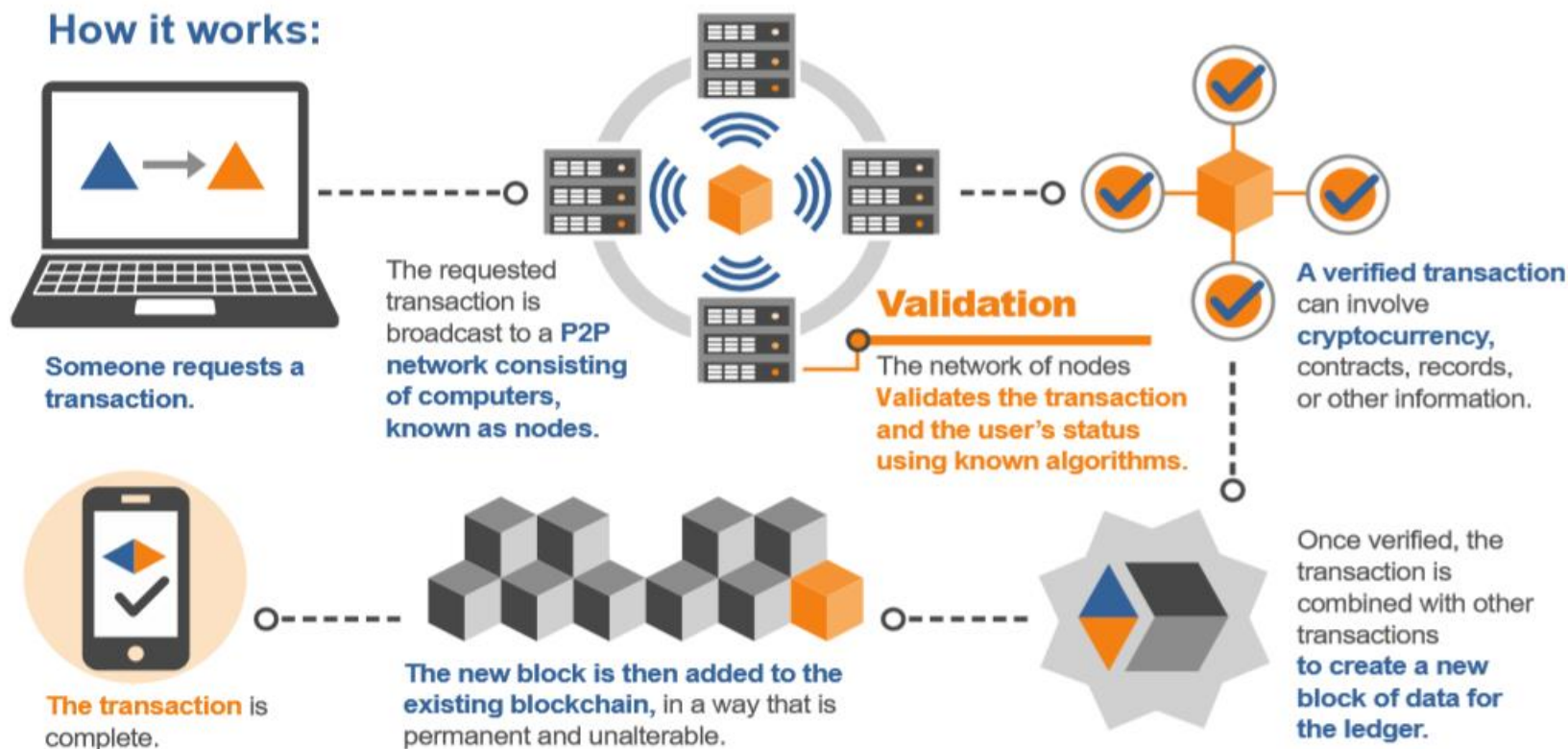
I) Centralized competitive markets:

- a) Green Certificates anonymous centralized **term** market (GCACTM);
- b) Green Certificates anonymous centralized **spot** market (GCACSM).

II) Directly negotiated contracts market in the benefit of RES producers with installed capacities of maximum 3 MW.

Green certificates must be bought by all energy suppliers up to a quota calculated by the Romanian Energy Regulatory Authority (ANRE) as a percentage of the energy they have produced.

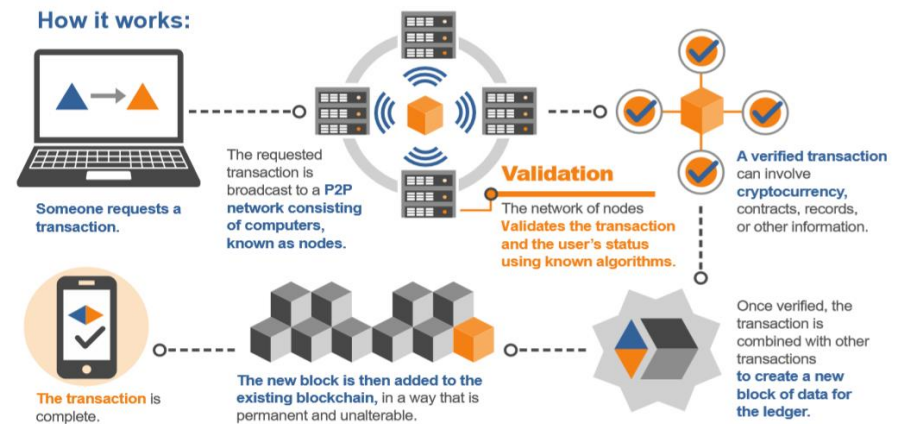
Basic approach to blockchain in the green certificates market



From: The Developing Role of Blockchain Whitepaper 1.0

Basic approach to blockchain in the green certificates market

- In terms of general structure, the Green Certificates Blockchain would be similar, adapting the **spot** market.
- The system would also be integrated with the energy systems metering in order to automatically generate both the Green Certificates for producers and for economic operators with GCs quota obligations.



The blockchain itself would also contain information about each Green Certificate and its current owner, updated using the data from the transactions in every block. Because of this, it would replace the current GC registry.

In addition, this data would be readily available to both the regulatory body (ANRE) as well as the companies responsible with energy transport and distribution.

Pros and cons to using blockchain in the green certificate market

Pros

- Distributed
- Immutable
- Transparent
- Equally shared
- Real-Time

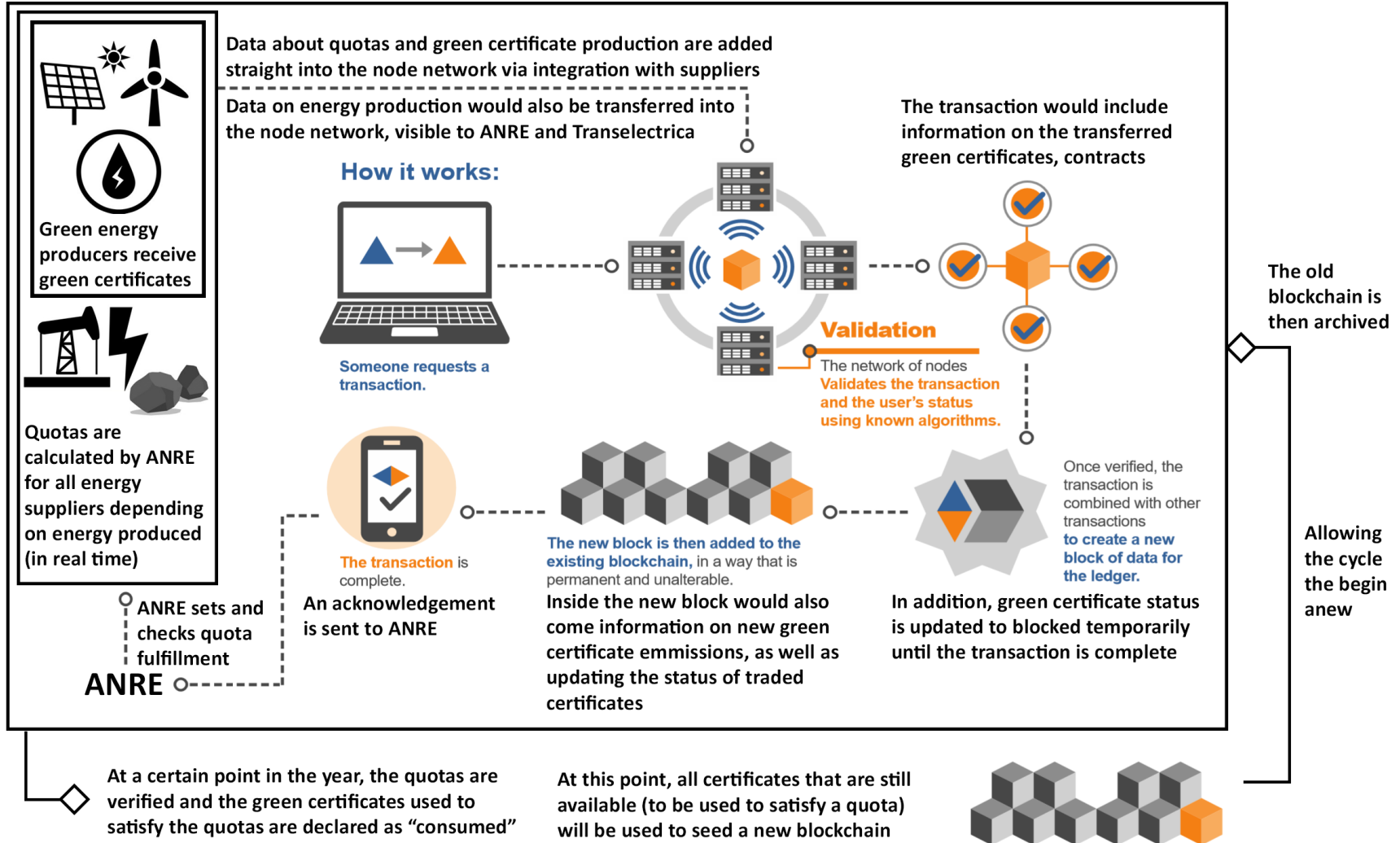
Cons

- User accessibility
- Integration requirements
- Infrastructure requirements
- Blockchain size

Pros and cons to using blockchain in the green certificates market

- Potential fixes for the cons:
 - User accessibility – as time goes on traders will become more familiar with blockchain technology;
 - Integration requirements – power production, distribution, consumption and trading data can eventually become integrated to simplify the system;
 - Infrastructure requirements – infrastructure improvements are made constantly, leading to a possibly fully integrated system in the future;
 - Blockchain size – can be fixed by using a new blockchain every year, seeded using unconsumed certificates from the previous year.

The possible future of the green certificate market



Conclusions

- Blockchain improves the efficiency of a market that already exists
- Implementing a blockchain solution has requirements that are currently unfulfilled
- The infrastructure and integration requirements will be fulfilled with time
- Newer better solutions may be available in the future
- OPCOM will look forward to implement these solutions when the time comes



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Thank you for your attention !

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