Peer-to-peer Electricity Trading

Legal Obstructions and Possibilities

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Peer-to-peer (P2P) blockchain electricity trading is hot

😃 that's nice 😃
but …

😳 What does the law say? 😳

Definition Peer-to-peer(P2P) electricity trading

For this lecture:

direct electricity trading, forth and back, between two parties, ***from which at least one is a small consumer*** (NL: grid connection ≤ 3 x 80 A).

Why P2P Blockchain trading

- Large scale local intermittent energy production
- Congestion in distribution grids
- Decentralised balancing and storage
- Real time P2P trading / demand response
- Blockchain (decentralised and transparent)

P2P block chain trading – 2 Dutch Pilots

1. De Ceuvel

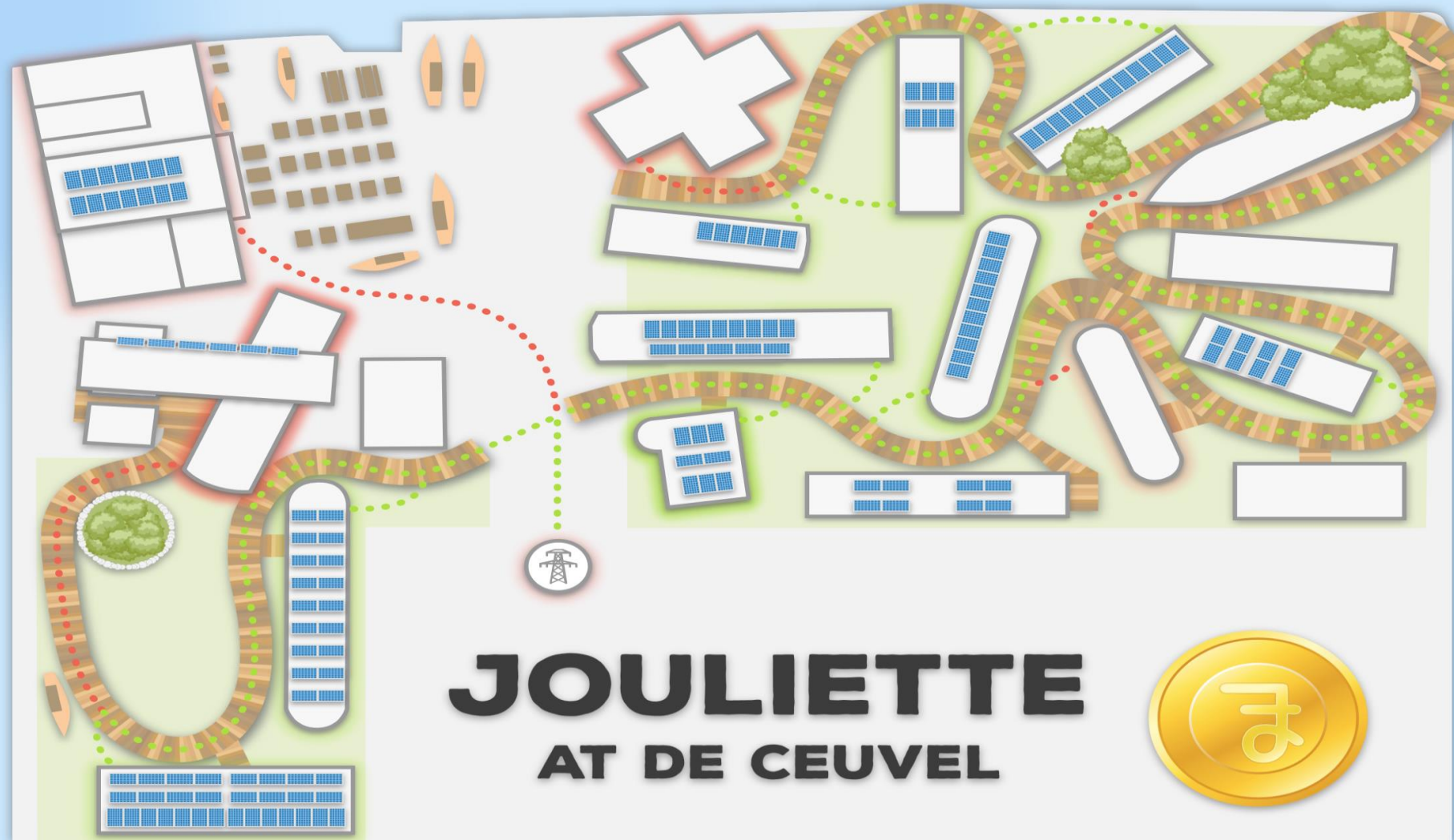
2. Schoonschip (Clean-ship)
   NB: under the Experiments-scheme


De Ceuvel
powered by Spectral

De Ceuvel

- 1 facility location for working, meeting, eating and drinking and sleeping;
- 17 buildings/boats: meeting boats, restaurant/café, work shop, boat-hotel;
- 12 with ‘own’ PV systems;
- One single real estate object;
- 1 grid connection;
- 1 micro grid (measurements per building/boat);
- Blockchain-based energy management;
- Jouliette as energy trading token.

De Ceuvel real time energyflow



Schoonschip (Clean-ship)

powered by Spectral

BEELD: SPACE&MATTER

Schoonschip (Clean-ship)

- Community of 46 households
- 46 private PV systems
- **46 separate real estate objects**
- **1 community owned real estate object (a.o. the jetty, smart grid, battery network)**
- 1 grid connection
- 1 community owned micro grid.
- Blockchain-based energy management
- Jouliette as energy trading token

Legal obstructions NL

- Forbidden to supply electricity to small consumer (≤ 3*80A) real estate objects without a licence
- It is forbidden to deliver electricity to the grid without a registration

Legal obstructions EU and NL

It is forbidden to other entities than the DSO to:

- to operate a (local) grid for households
- provide connections to the grid
- transport electricity over the grid
- measure electricity production from RE sources
- provide, maintain and operate measuring equipment for small consumers

Spectral projects under EU and NL legislation

De Ceuvel:

- 1 connection to 1 real estate object
- Smart grid = internal installation
- All activities fall outside the reach of the law

Schoonschip:

- Special exemption under the Experimenten Regulation
- Violation of the law is permitted for a limited period of time
- No exemption for energy tax law

EU future legislation: “Clean Energy for all Europeans”-package

Provisions for energy communities in:

- Proposal for an Internal Electricity Market Directive: ***‘Local Energy Communities’***
- Proposal for a Renewable Energy Directive ***‘Renewable Energy Communities’***

Energy Communities – provisions

1. Proposed Internal Electricity Market Directive:
    a. Member States *shall* ensure that LEC's:
        - Can own, establish or lease and autonomously operate community networks
        - Can access al markets directly or through an aggregator or supplier
    b. Member States *shall* provide a framework, that:
        - Protects participants against losing their rights
        - Non participating users are treated fairly

Energy Communities – provisions

2. Proposed Renewable Energy Directive:

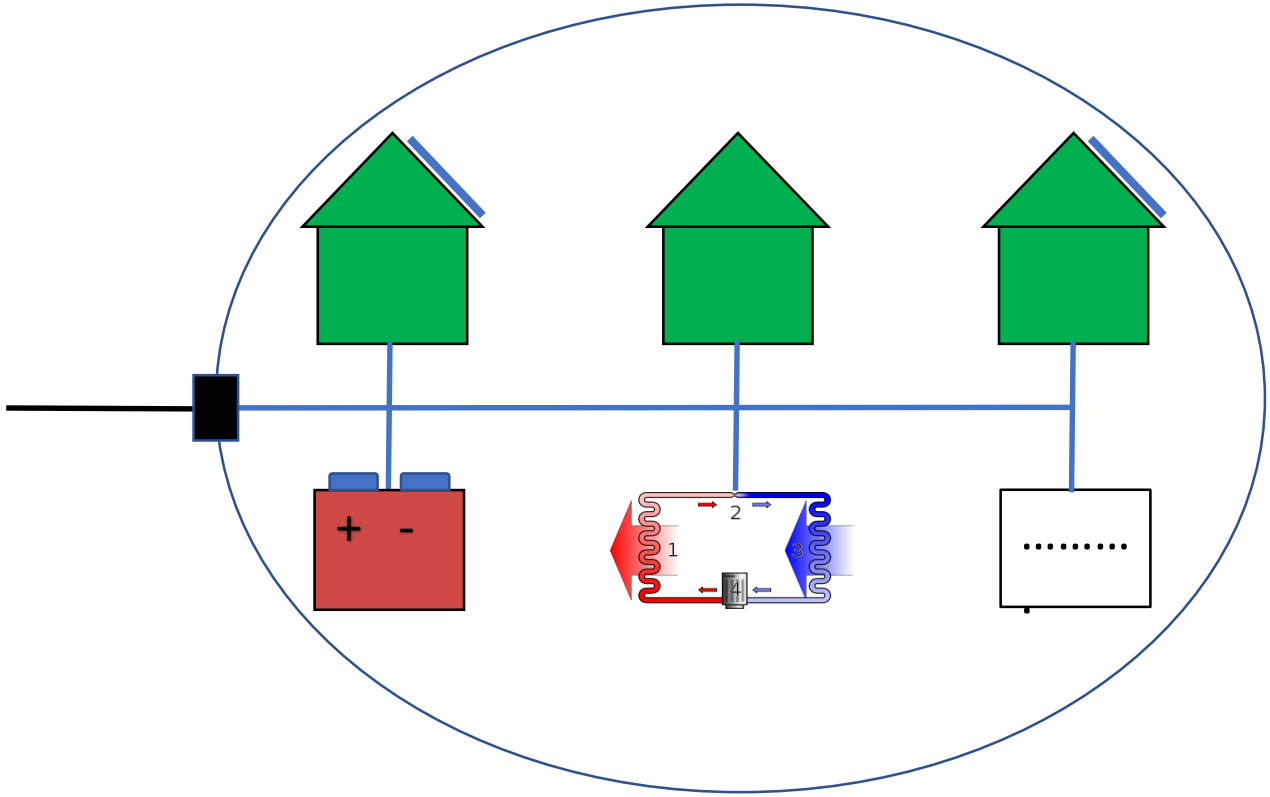
Member States *shall* ensure that REC's are:

- entitled to generate, consume, store and sell renewable energy, including through power purchase agreements,
- without being subject to disproportionate procedures and charges that are not cost-reflective.

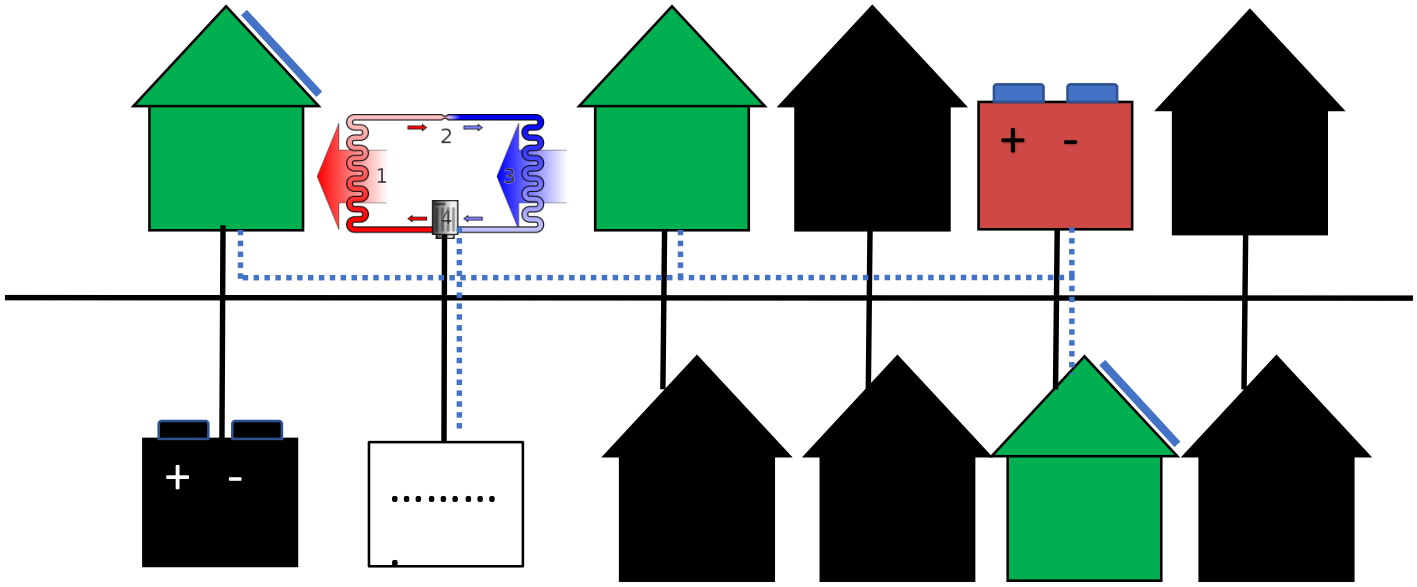
Energy Communities – obscurities and uncertainties

- Lack of clear definitions
- Number of participants in the community not specified
- EM Directive defines a LEC; the RE Directive defines a REC !!
- The extent of ‘local’

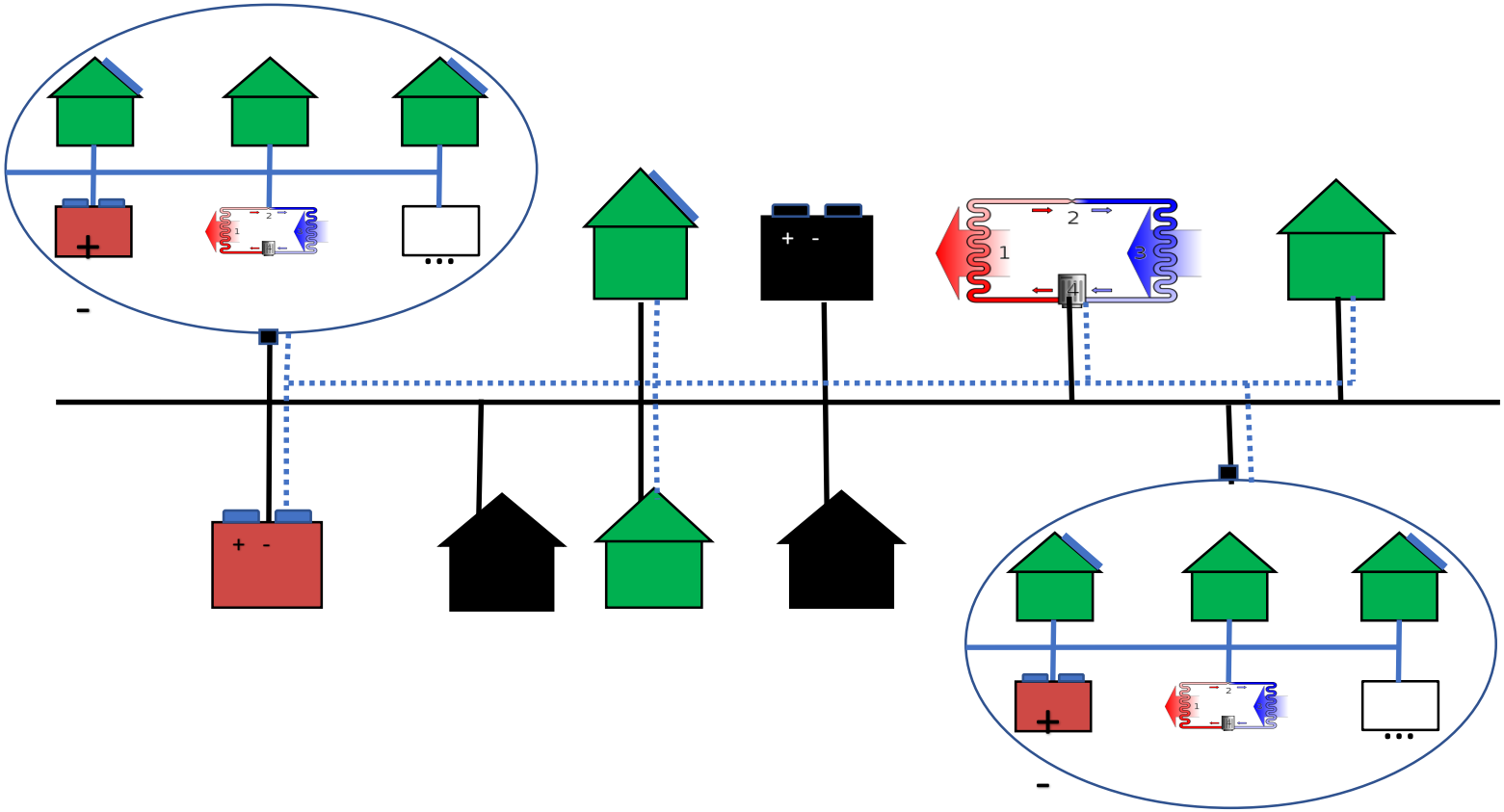
LEC or REC - basic



LEC or REC – simple virtual



LEC or REC – composed virtual



Implementation in national law

Where will the legislator draw the line in

- Geographic extension
- Minimum and maximum number of participants
- Total installed power
- Volume of trading
- Acceptation of (new) financial instrument(s)

INVITATION

To join the Legal Energy Community to

- exchange experience regarding
  - Present-day legal obstructions
  - Desired legal freedom
  - Physical / electrotechnical constraints
- Jointly define a desired legislation for a optimal functioning of LEC's or REC's
- Mutually support each other in the formulation recommendations for legislators

Interested?

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