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Peer2Peer: the *new digital frontier* in electricity trading

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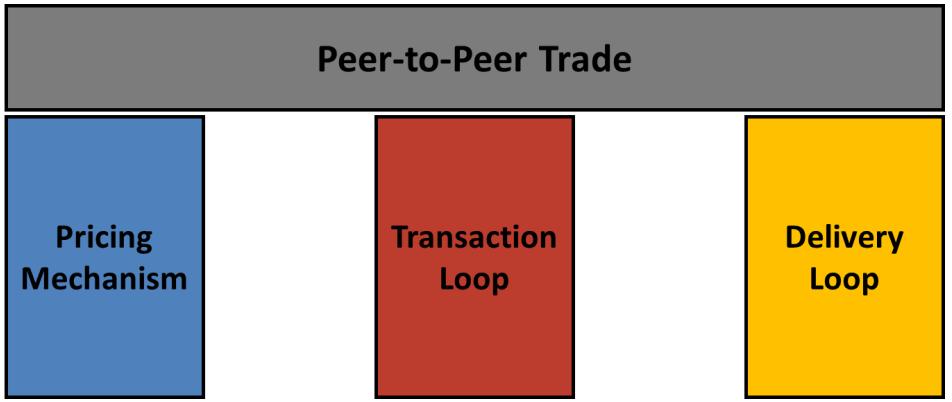
Based on work done by Nicolò Rossetto, FSR

What does P2P need to function?

- Three pillars necessary to support any (P2P) trade
  1. A **pricing mechanism** providing adequate economic incentives to buyers and sellers
  2. A **transaction loop** enabling the containment of transaction costs (for searching, matching, settling, handling disputes, etc.)
  3. A **delivery loop** ensuring the product is given to the buyer
- ***Digitalisation*** key to lower transaction costs & enable small-to-small transactions



Trading kWh peer-to-peer

- Electricity difficult to trade for P2P (challenges for each pillar)
- ***Pricing mechanism***
  - Limited value of single trades
  - Variability in the availability and value of the product
- ***Transaction loop***
  - Difficulty to identify the counterpart and verify characteristics of the product delivered
  - Need to settle a large amount of small transactions
  - Lack of trust without credible & efficient dispute handling mechanism
- ***Delivery loop***
  - Electricity supply needs a grid for efficient and secure delivery
  - Externalities in the use of the grid & rules put in place to deal with them
  - Rules for “public” grids developed with B2X transactions in mind

Two real-word case studies

Real-world cases	Pricing mechanism	Transaction loop	Delivery loop
Quartierstrom 	• Double auction of energy locally produced every 15’ • No transmission charge for locally consumed energy	• Permissioned blockchain embedded in local generation units running the local market	• Electric line in a neighbourhood • Smart pi installed at the peers premises • Local utility filling any gap or surplus & providing integrated bills
Powerpeers 	• Possibility to select up to 5 counterparts and be supplied by them • Producers can define the price of sale • No waiver for charges • Subscription fee	• Proprietary software matching injections and withdrawals and tracking them • Online dashboard easily accessible by peers providing energy feedback	• Dutch electricity system • Smart meters at peers’ premises • Retailer taking care of the interactions with other markets & system operation

Thank you for your attention!

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