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What role for municipalities in a blockchain-based energy system?

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WHERE ACTION & VISION MEET

Energy Cities' network

The European network of local authorities in energy transition

Representing over **1,000** cities in **30** countries

From small towns to big cities with diverse ambitions

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Energy Cities' blockchain study

- Blockchain & energy transition - what challenges for cities?
- Role of technology in local energy transition of cities
- Potential applications, threats & opportunities, examples at local level (mostly pilots)

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Cities' current energy situation

- Rapid decentralisation of the energy system
- Energy sector is not far from experiencing its « Uber » moment
- Self-consumption & prosumers on the rise
- Artificial intelligence & machine learning making their way into the energy sector

What stake for blockchain in cities' energy agenda?

- Empower municipalities to take back control in the field of energy policies
- Balancing the urban energy ecosystem
- Enable to open up new opportunities for remuneration & local added value
- Bring governance back to the local level

Cities' role in a blockchain based energy system

- **Several roles are possible:**
  - Enable & facilitate other blockchain players
  - Become a « new intermediary » in the system
  - Promote local renewables among citizens
  - Use blockchain to tackle (energy) poverty

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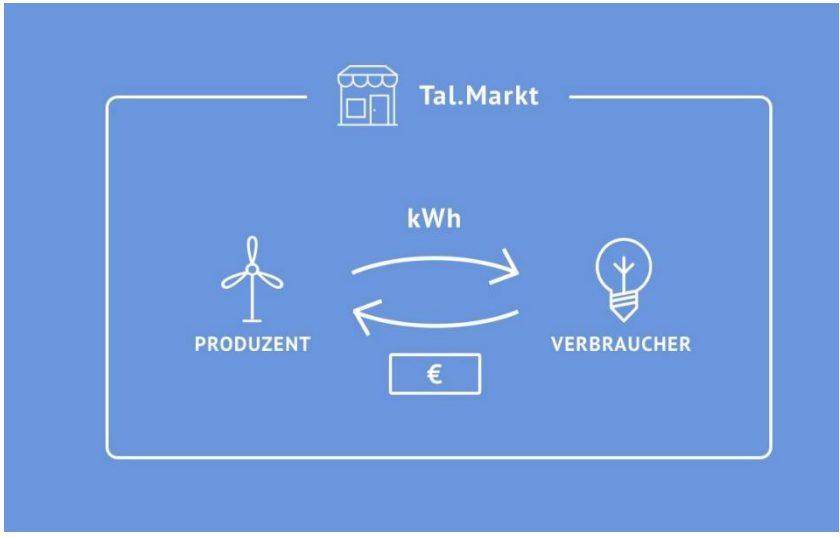
Cities' role in a blockchain based energy system

- **Enabler & facilitator: Example of Prats-de-Mollo in Southern France**
  - Municipality pledged to become energy-autonomous
  - To reach its objective, supports research /community energy data collective DAISEE to experiment with blockchain technology on its territory
  - Development of distributed model focusing on citizen ownership, grid governance & managing energy data

Cities' role in a blockchain based energy system

- **« New intermediary »: Example of Stadtwerke Wuppertal, Western Germany**
  - Set up the online platform « Tal.Markt » to link up local renewables producers & citizens
  - New source of income for the municipality & also local renewables producers no longer supported by *Erneuerbare Energien Gesetz*
  - Tal.Markt tailored to needs of Wuppertal area



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Cities' role in a blockchain based energy system

- **Promote local renewables among citizens: Gruenstromjeton, Stadtwerke Energieverbund**
  - Citizens incentivized to increase share of local renewables in energy mix through cryptocurrency Gruenstromjeton (which has real value)
  - Households with smart meter can access this service
  - Blockchain processes transactions & ensures infallible and rapid invoicing of energy used

GrünstromIndex und GrünStromJeton

Uhrzeit	Grünstrom	Graustrom	Verbrauch	Grünstrom Jetons	Graustrom Jetons
10:00-11:00	60%	40%	100 Wh	60	40
13:00-14:00	20%	80%	100 Wh	20	80
16:00-17:00	100%	0%	100 Wh	100	0

Cities' role in a blockchain based energy system

- **Use blockchain to tackle (energy) poverty: Example of Hull, England**
  - Hull has created social cryptocurrency – the HullCoin
  - City mines its & reinvests all its profits into its social policy to reduce poverty within its territory
  - Vulnerable citizens volunteering are paid in HullCoins
  - HullCoins can be then traded e.g. for hot meals at the local food banks, get discounts in shops, etc.
  - Plans to expand in energy policies in the future?

Venues for city/cooperative collaboration through blockchain

- In a local authority-energy cooperative partnership, the energy supplied to the local authority could be e.g. paid for in a local cryptocurrency linked to the local currency

- Provide space for peer-to-peer renewables experimentations, such as solar sharing in neighbourhoods

- Favouring in tendering / purchasing energy cooperatives for their local socio-economic added-value

Final thoughts

- Blockchain should be used by local players to shake up existing governance & functioning of energy sector, not just to « follow a hype »

- Think of the added contribution of blockchain technology for the development of the territory before deciding to work with it (local impact assessment)

- Understand & antiticipate the impact of the blockchain & the disrupted business models it creates

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Thank you

See you soon in the network!

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