Sustainable energy transition and big data in social housing

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Experience

Manager Vastgoed en Ontwikkeling
Woningcorporatie Bo-Ex
Sep 2013 – Present • 4 yrs 3 mos
Utrecht Area, Netherlands

Projectmanager
Woningcorporatie Bo-Ex
Jan 2006 – Aug 2013 • 7 yrs 8 mos
Utrecht Area, Netherlands

Projectmanager
Econcern
Jan 2000 – Dec 2005 • 6 yrs

Innovation manager
Inbo
1998 – 2000 • 2 yrs

Building Physics engineer
Cauberg-Huygen
1997 – 1998 • 1 yr
bo-ex
wonen begint bij mensen
• aim to be energy-neutral by 2030
• are currently in the "experimental phase"
Energiebeleid

Why?
**Trends**

- "Energy independence" and finiteness of our fossil energy sources and building materials
- digital sharing economy & cryptos
- decentralization: stay in control yourself
- industrialization (on a very large scale)
Import aardgas (gasvormig) naar land van herkomst

miljard m³

- Noorwegen
- Verenigd Koninkrijk
- Rusland
- Duitsland
- Denemarken

[Graph showing import trends from 2005 to 2015]
Sorry... NO GAS TODAY
Why extensive electrification

- simple and integral
- "cheap"
- decentralized and interchangeability
smartcity = smartgrids
A look at blockchain technology

What is it?
The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfers, settling trades, voting, and many other uses.

How it works:
1. Someone requests a transaction.
2. The transaction is broadcast to a P2P network consisting of computers, known as nodes.
3. The requested transaction is broadcast to a P2P network consisting of computers, known as nodes.
4. Validation: The network of nodes validates the transaction and the user’s status using known algorithms.
5. A verified transaction can involve cryptocurrency, contracts, records, or other information.
6. Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.
7. The new block is added to the existing blockchain, in a way that is permanent and unalterable.
8. The transaction is complete.

Benefits:
- Increased transparency
- Accurate tracking
- Permanent ledger
- Cost reduction
- Complex technology
- Regulatory implications
- Deployment challenges
- Competing platforms

Cryptocurrency

Cryptocurrency is a medium of exchange, created and stored electronically in the blockchain, using encryption techniques to control the creation of monetary units and to verify the transfer of funds. Bitcoin is the best known example.

Unknows:
- Has no intrinsic value in that it is not redeemable for another commodity, such as gold.
- Has no physical form and exists only in the network.
- Its supply is not determined by a central bank and the network is completely decentralized.

Potential applications:

Automotive
Consumers could use the blockchain to manage fractional ownership in autonomous cars.

Financial services
Faster, cheaper settlements could save trillions of dollars, from transaction costs while improving transparency.

Voting
Using a blockchain code, constituents could cast votes via smartphone, tablet or computer, resulting in immediately verifiable results.

Healthcare
Patients’ encrypted health information could be shared with multiple providers without the risk of privacy breaches.
THE INTEGRATED GRID

Electric cars could provide a distributed storage system for the grid, returning power to the users as needed.

- **Charged batteries** - can store energy from the grid when not in use, and spares can be kept at stations to replace those that run out.
- **Processors** - control when energy enters the grid and when it leaves, helping to even out fluctuations in renewable sources.
- **Power input to grid** - from renewable sources or from batteries.
groen is poen!

- prosument
- energy = currency
Windturbine tienhoog op flat Overvecht

Geen flat van tienhoog in de provincie is zoveel geschikt voor de installatie van een windturbine dan de Overvecht. Het punt van uitgang was de ruimtelijke verspreiding van de woningen. Het idee van een windturbine werd al enkele jaren geleden opgehelderd, maar de kosten werden als te hoog beschouwd. Nu de woningmarkt in een daling raakt, is de tijd rijp om de installatie te realiseren.

De windturbine wordt geïnstalleerd op de flat Overvecht. Het project is een samenwerkingsverband tussen de woningcorporatie en een energiebedrijf. De woningcorporatie heeft de nodige ruimte en de energiebedrijf heeft de economische middelen om de installatie te financieren.

De windturbine moet nu nog de goedkeuring van het stadsbestuur verkrijgen. De woningcorporatie hoopt dat de goedkeuring binnen een paar weken zal worden gegeven. En dan blijft alleen nog over de realisatie van de windturbine.