

NRGcoin: Decentralized currency for renewable energy

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Issues with net metering

- big producer with little consumption in neighborhood of consumers
 - Her green energy will not be rewarded, despite demand



- a neighborhood full of average prosumers
 - Their green energy will be rewarded, even if no demand



Motivation

- more confidence needed in renewable investment
 - policy change is main risk factor
- still using legacy payment systems
 - energy transition already happening
- centralized systems are a single point of failure
 - shift towards decentralization of control

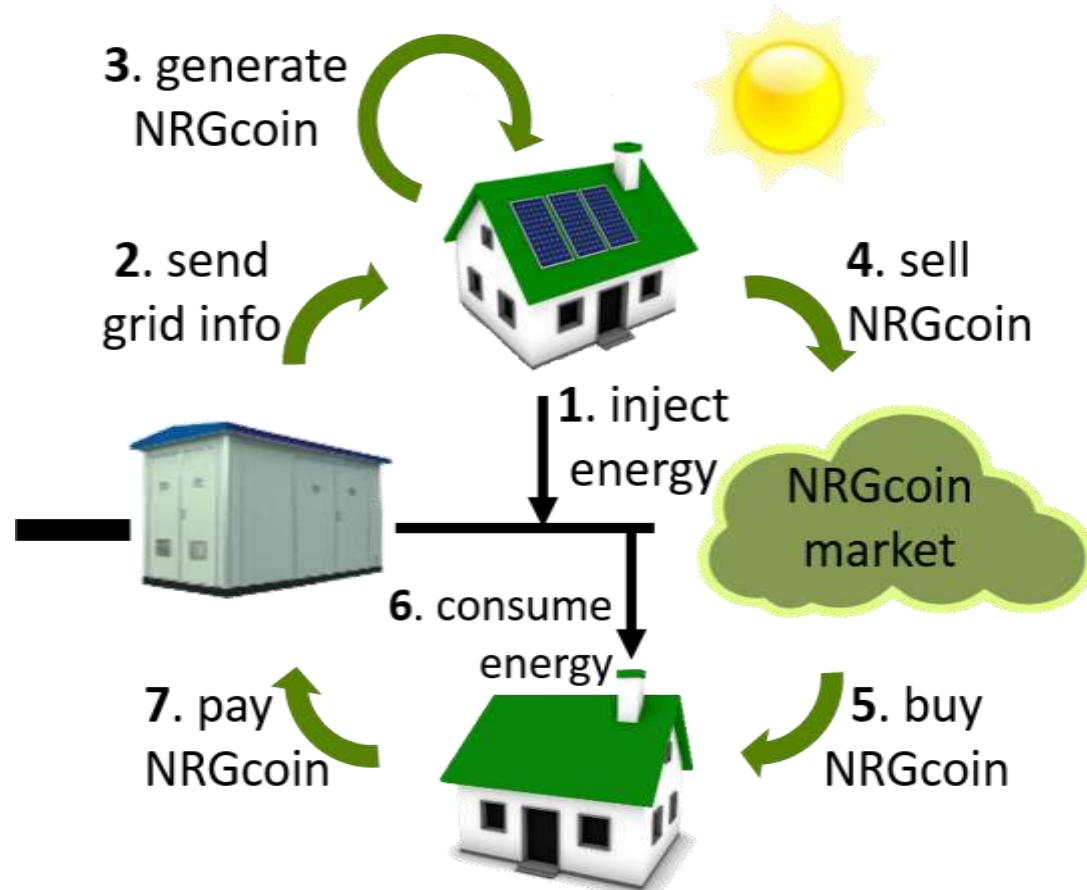
Trends

decarbonization

digitalization

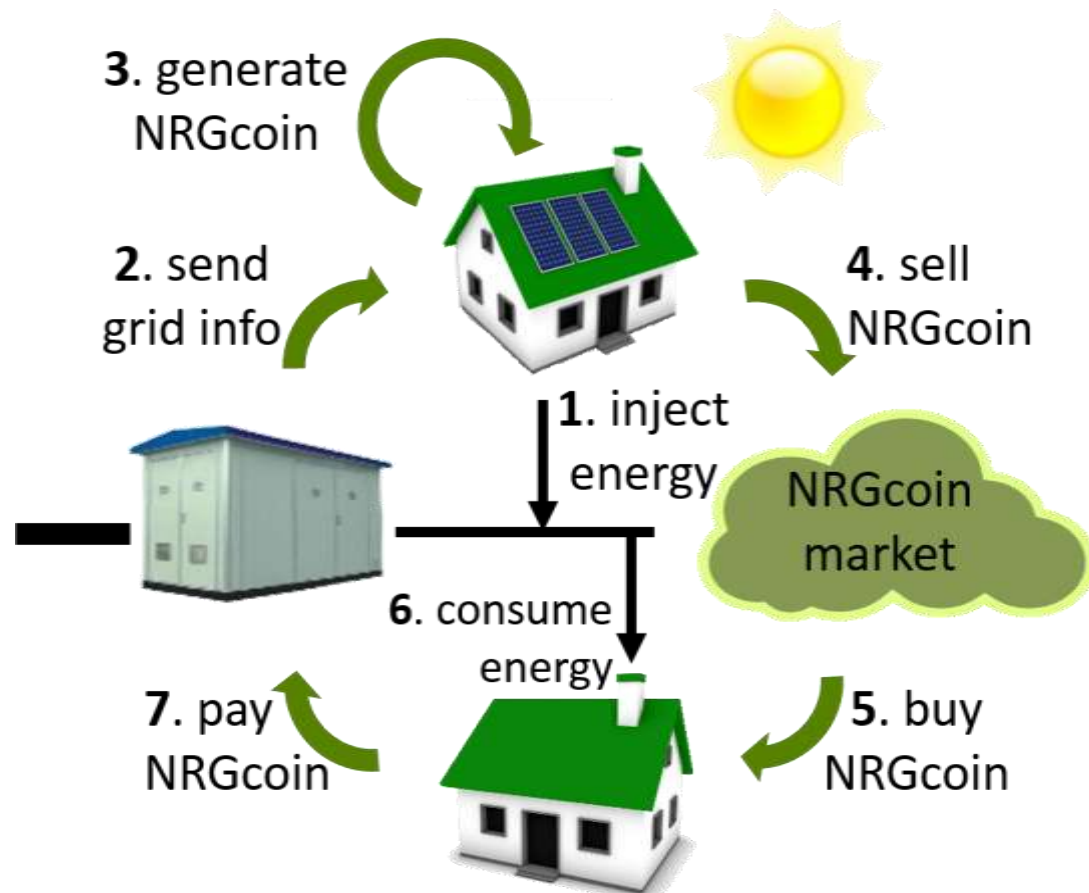
decentralization

NRGcoin: decentralized digital currency for renewable energy



Why NRGcoin?

- incentivize shift towards renewables
- boost the renewable energy economy
- traditional incentive mechanisms are flawed, alternative mechanisms needed



NRGcoin currency

created

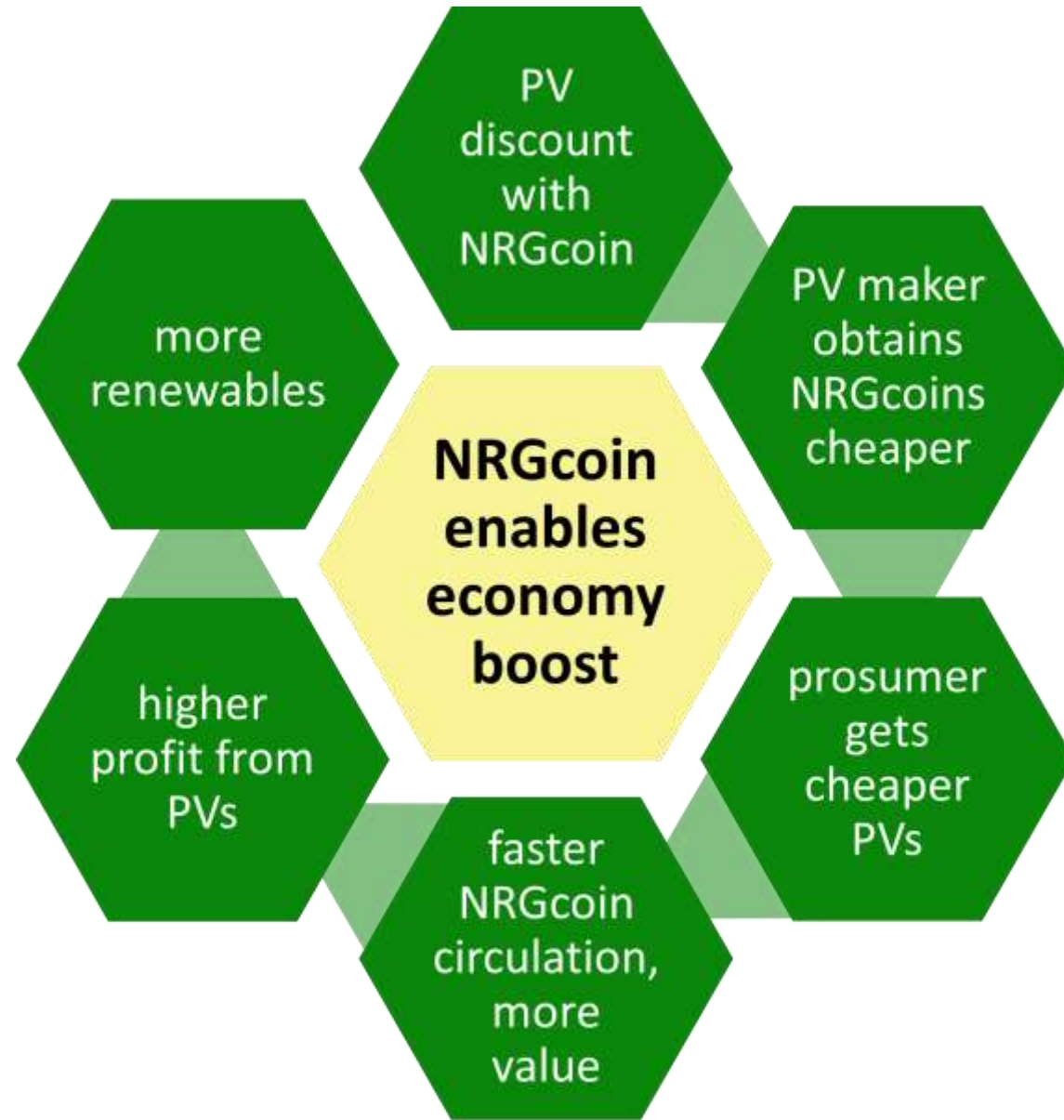
- by supplying renewable energy to the grid
- 1kWh injected green energy creates 1 NRGcoin

spent

- by consuming renewable energy from the grid
- 1 NRGcoin buys 1 kWh green energy

traded

- on currency exchange markets against Euro, etc.
- price determined by market supply & demand



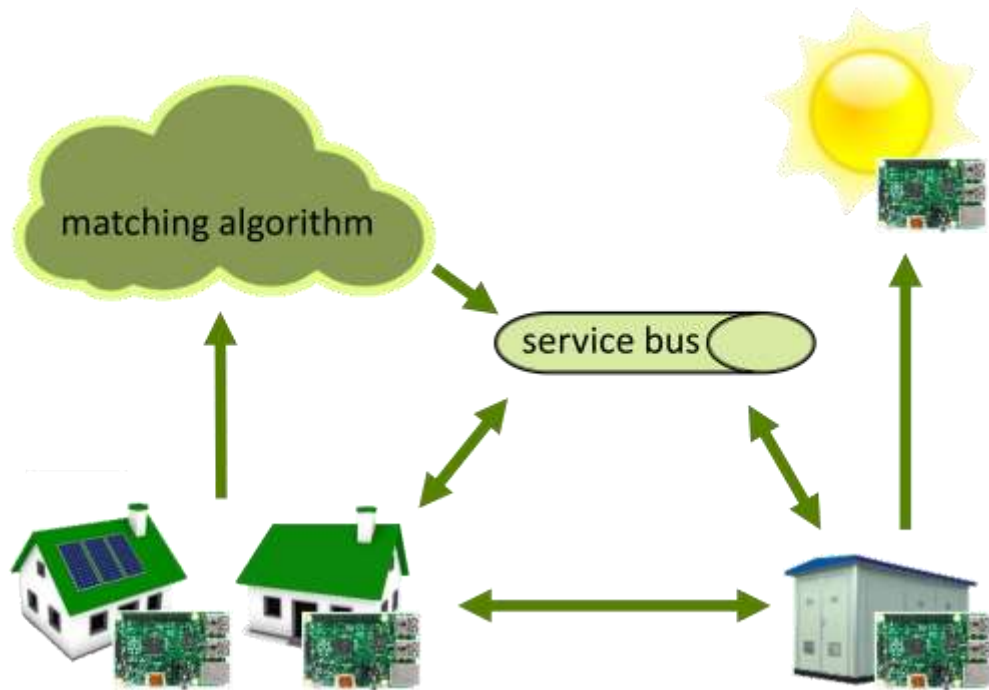


Drawbacks (and mitigation)

- Technology still too novel – requires paradigm shift (slowly happening)
- Difficult to implement a decentralized solution in a centralized market
 - Needs official acceptance (or just brokers)
- Proof of injection (tamper-resistant mechanisms)
- Parameter setup quite important (simulations, deployment)

Hardware demonstrations

with real data in mini-testbed



Conclusions and Outlook

- Developed new incentive mechanism – NRGcoin
 - incentivises shift towards renewables
 - creates economic and social value
- Shows good properties in simulation
- Implemented in mini-testbed
- Need to upscale. Looking for:
 - interested (commercial) partners
 - real-world pilots
 - funding
 - manpower