

# Blockchain Infrastructure for Energy Communities

**Marko Vukobratović, PhD**

**Base58 Ltd., Croatia**

**Trading Electricity with Blockchain Systems**

**August 31, 2022, 4pm Paris time**



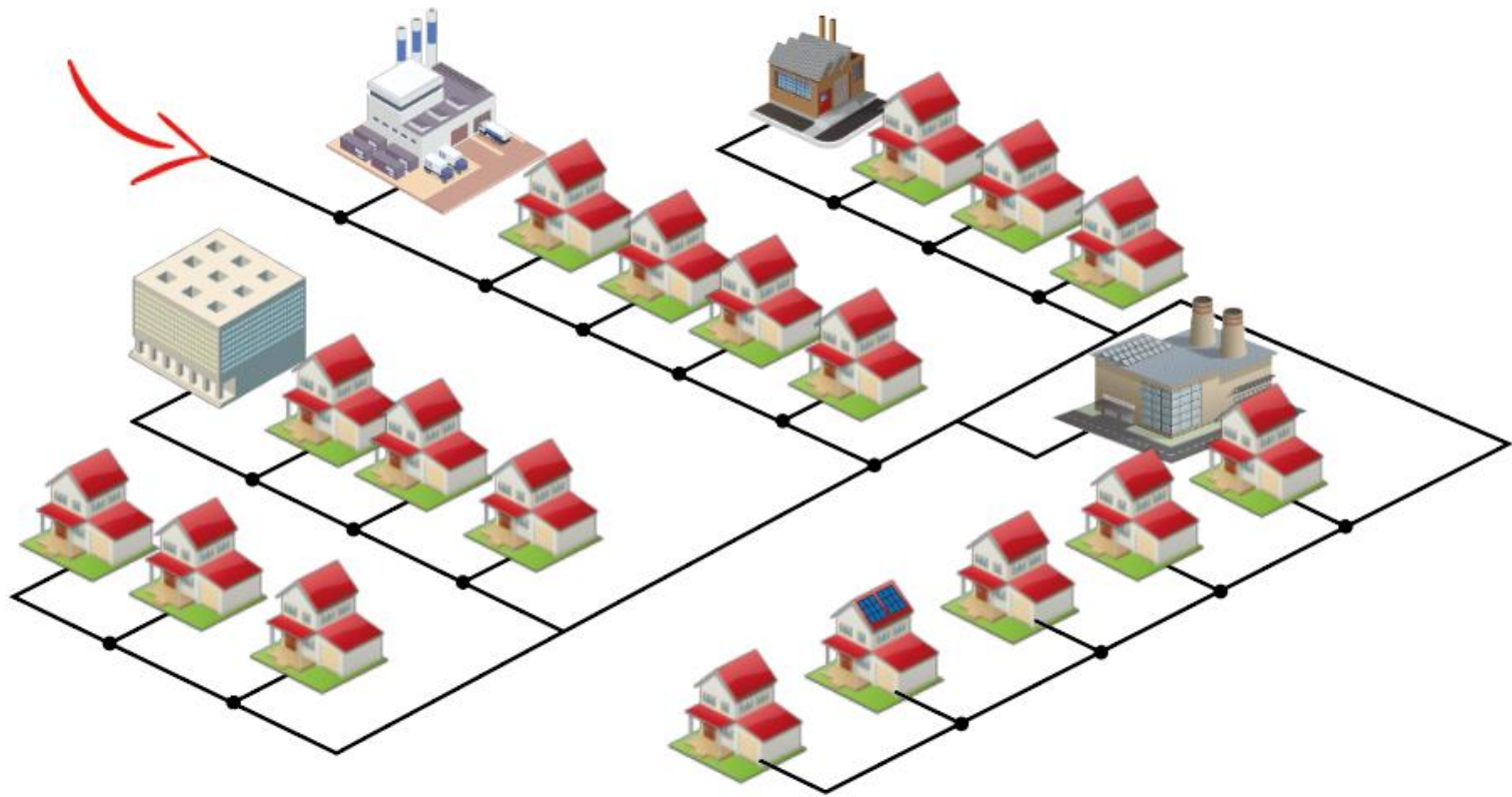
# Definition

- Blockchain Infrastructure for Energy Communities

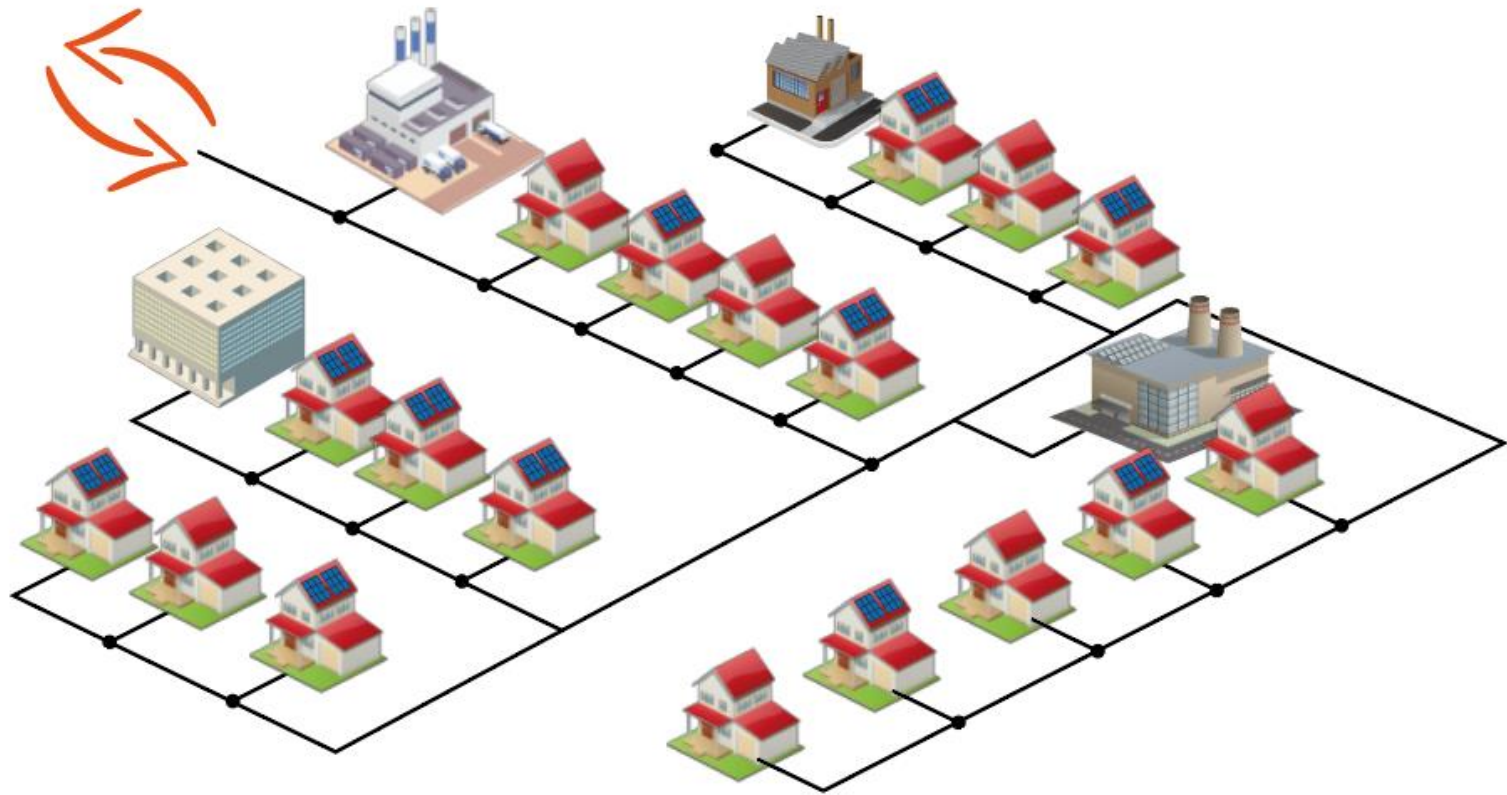
Blockchain-supporting hardware; ASIC;  
Energy-demanding computational hardware used for  
blockchain validation;

Citizen-driven energy actions; Help provide flexibility to  
the power system; citizen parts of the energy transition;  
greater benefits;

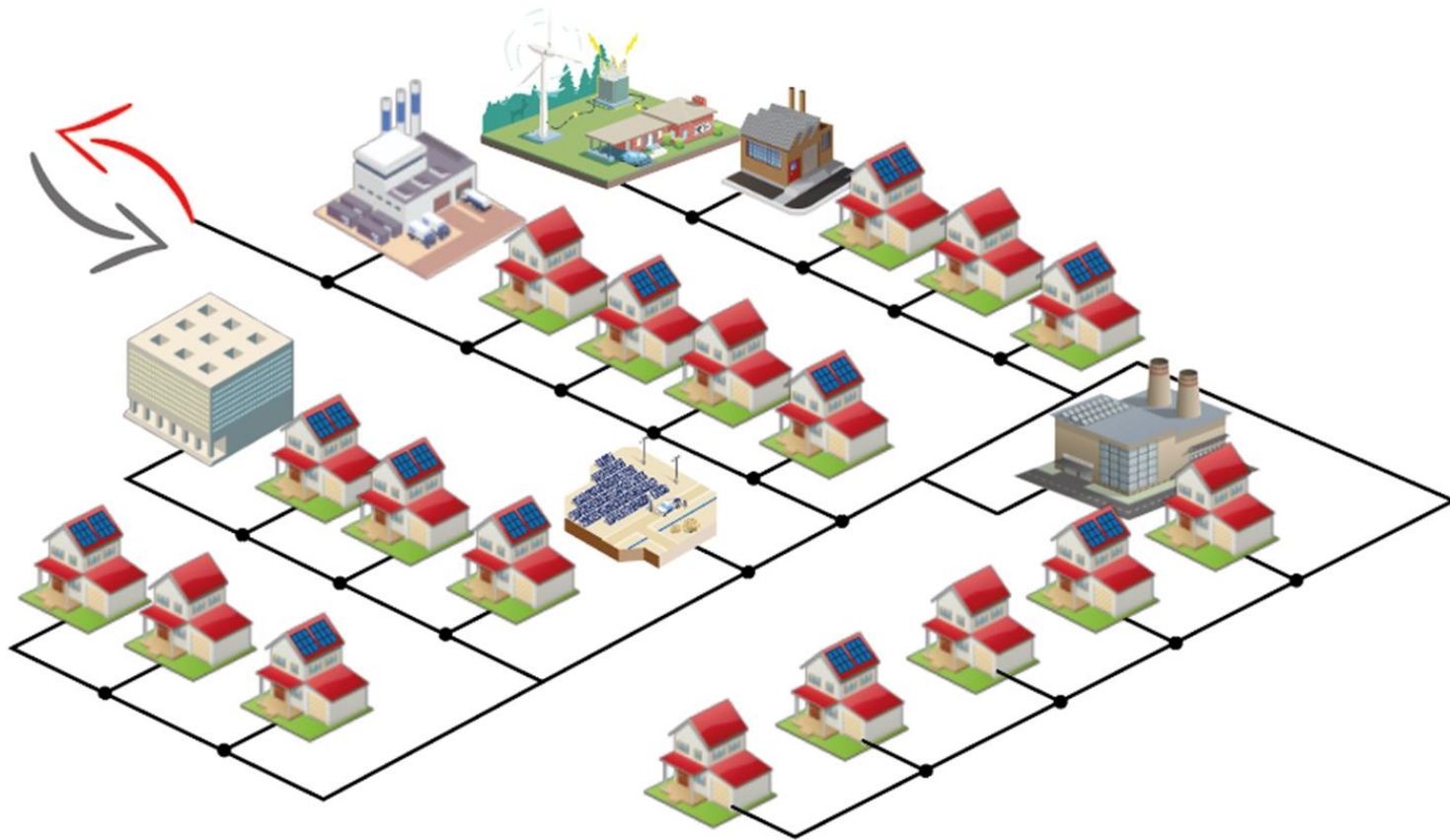
# Consumer to Prosumer



# Prosumers unite

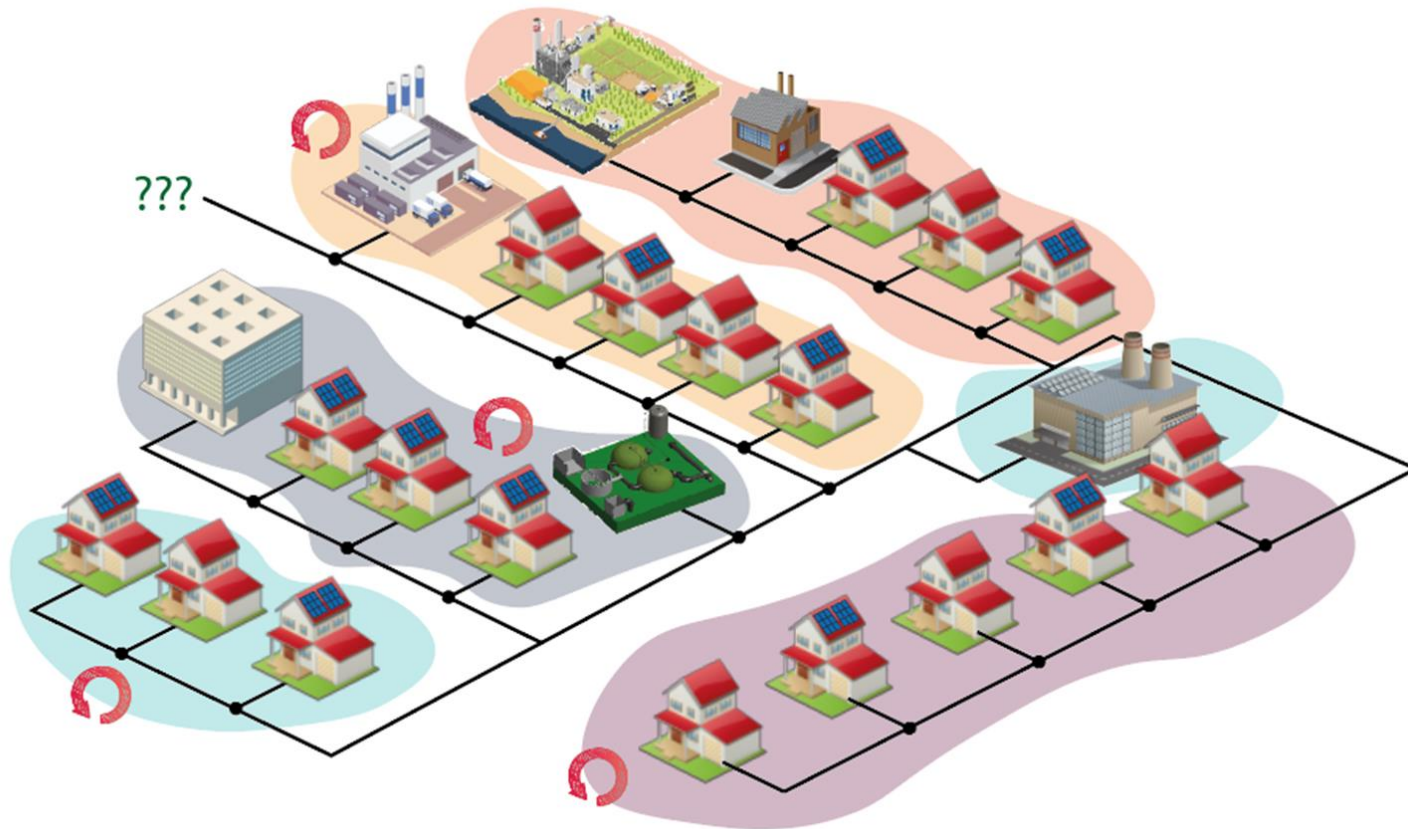


# Energy Community Emergence

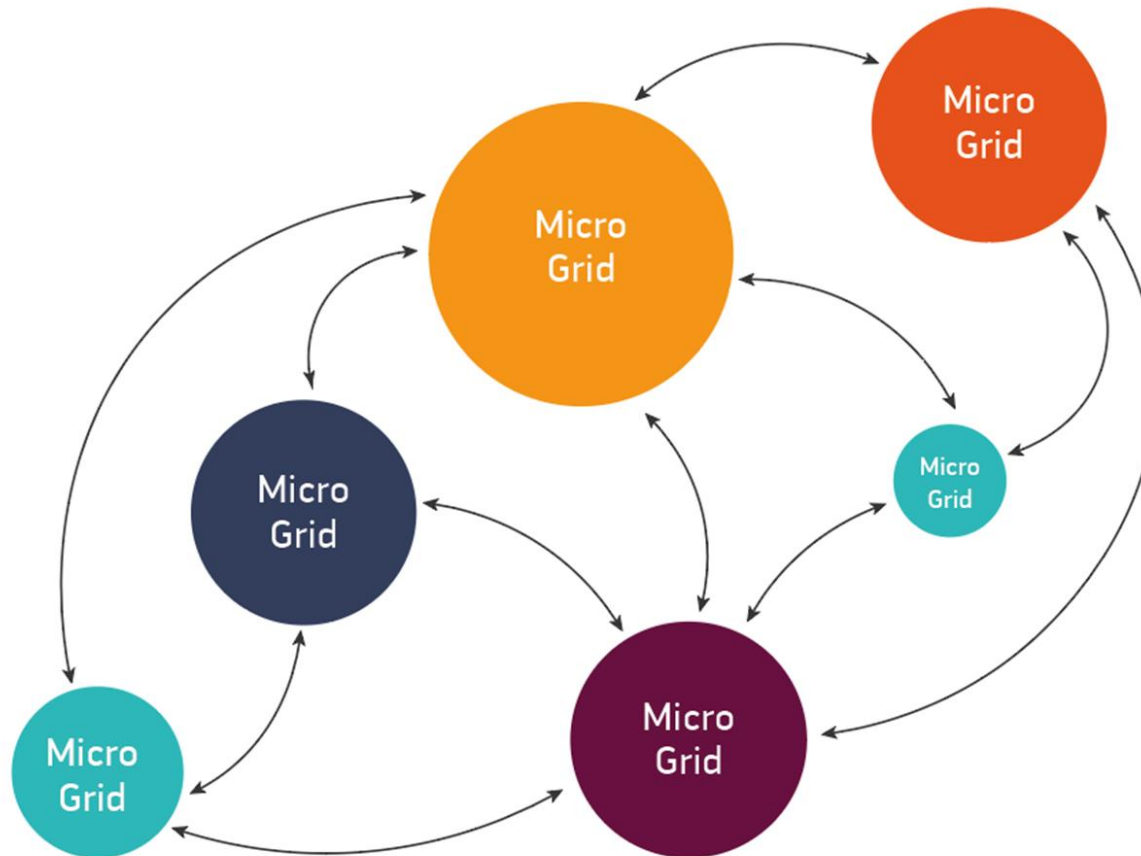




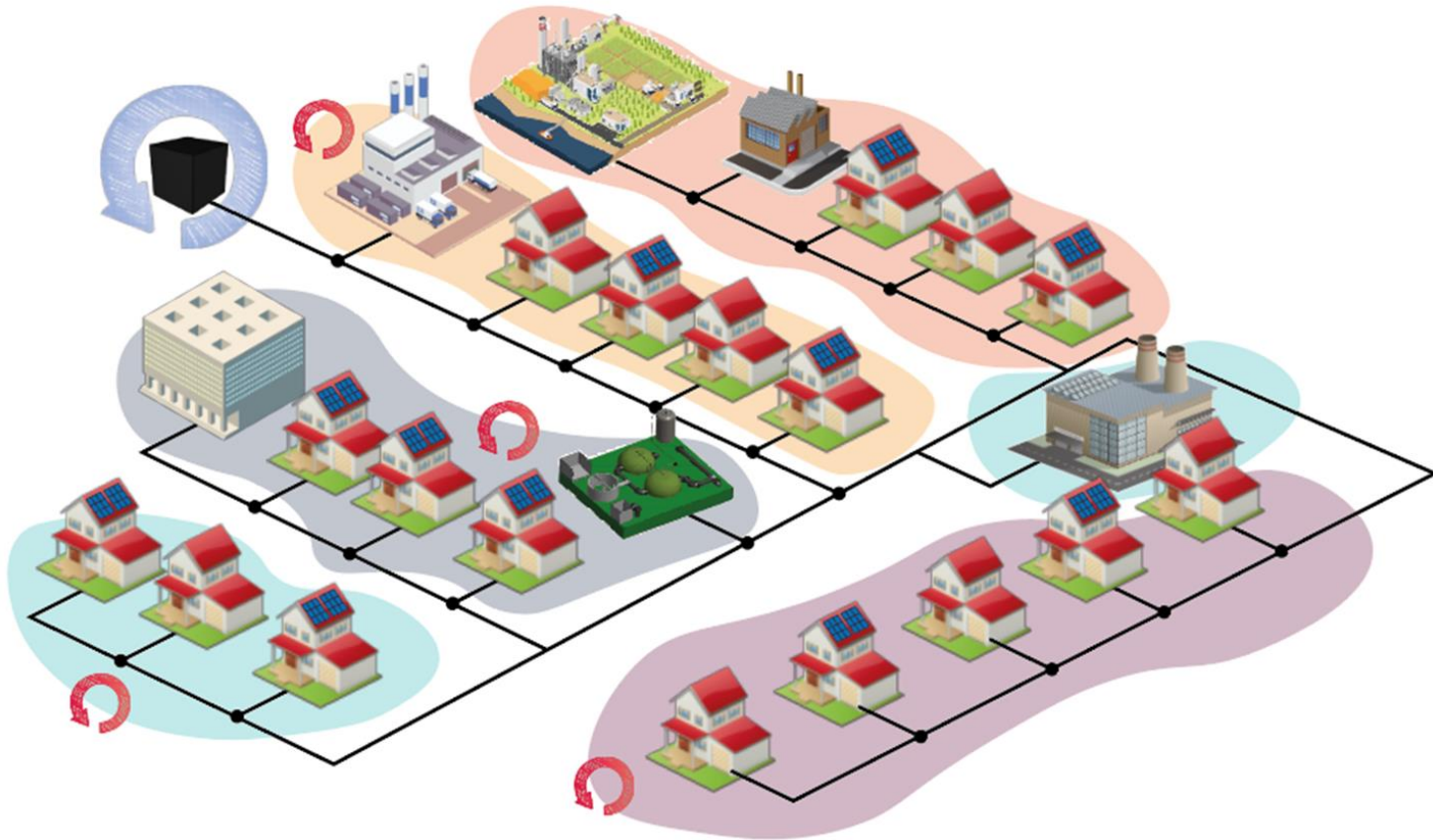
# Energy Community Organization



# P2P Energy Trading



# Surplus of Energy goes where?





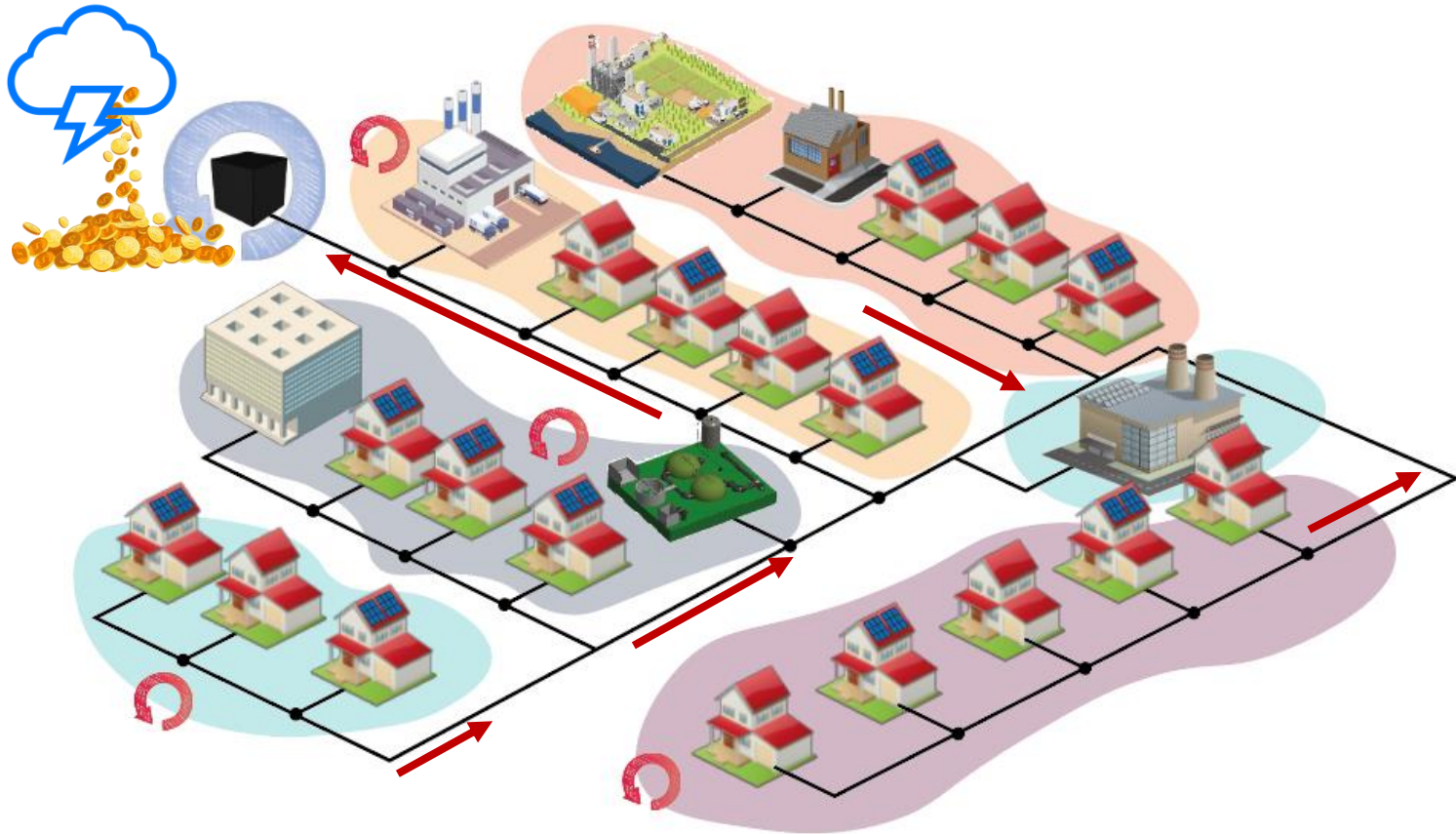
# Black Box Innovation



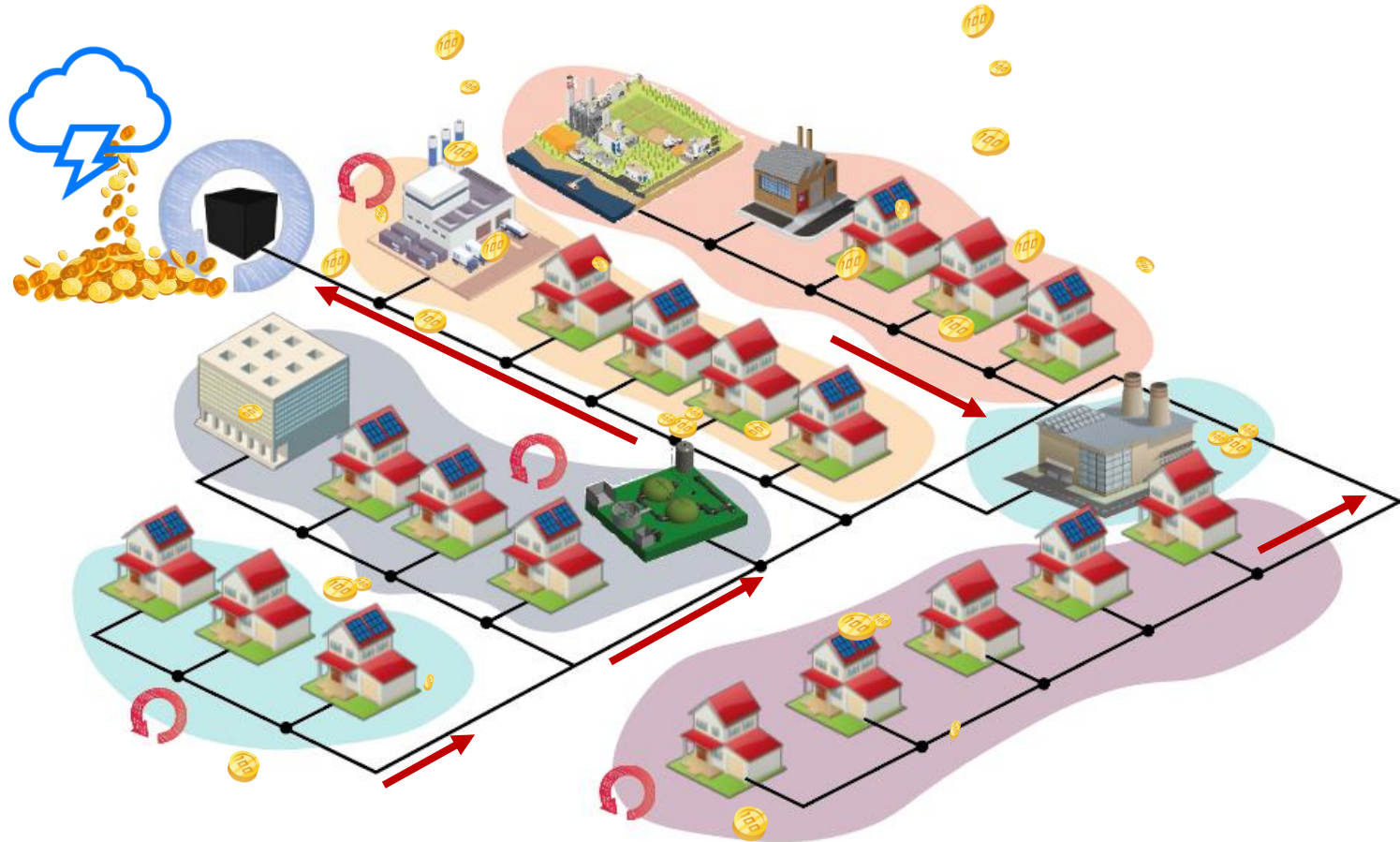
*We do not cut the peaks.  
We are straightening the curves!*



# Blockchain driven Energy Community

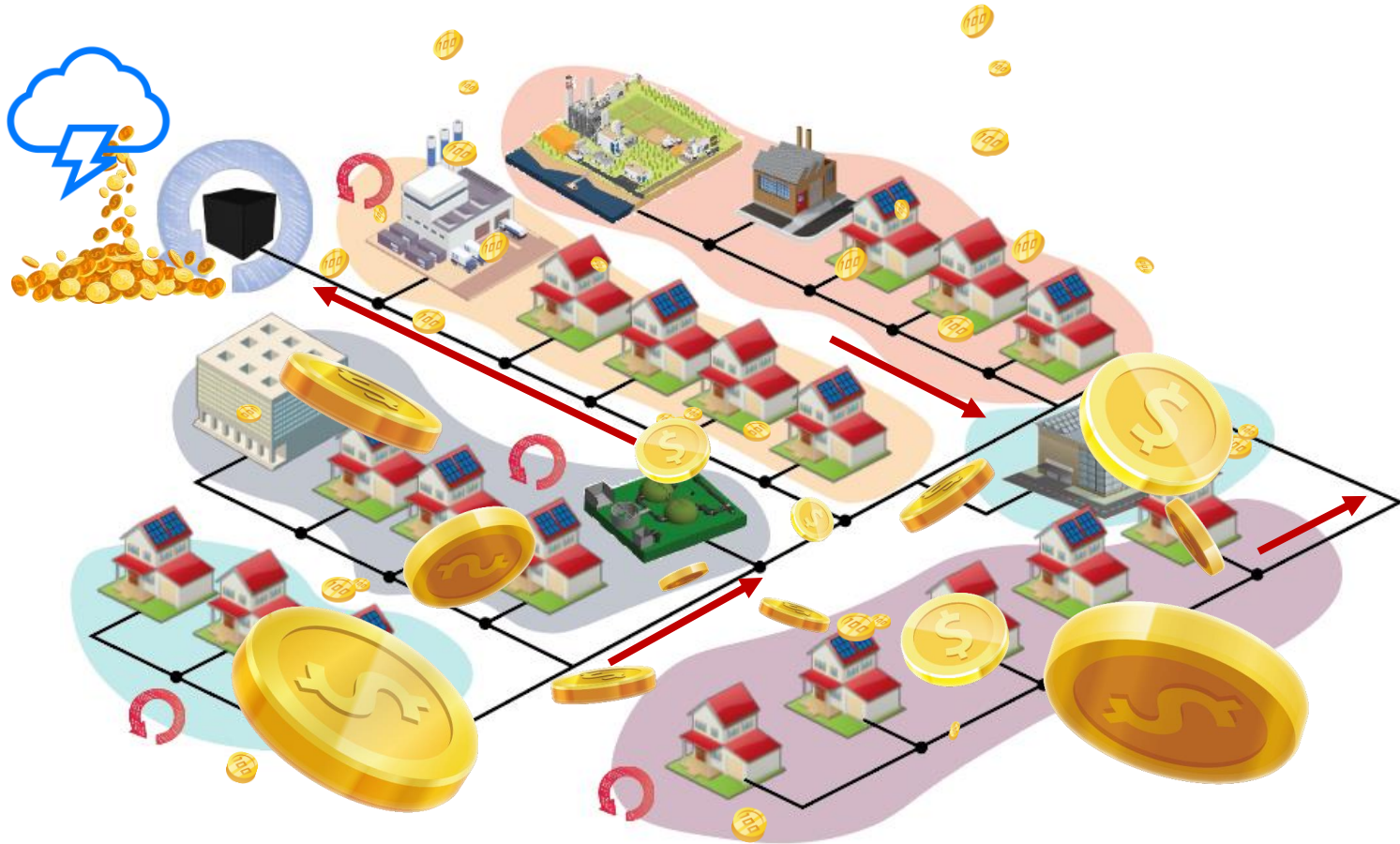


# Fair Share Approach





# Energy Community Revenue



# Highlights

- DSO provides infrastructure
- Energy Community is Agent-based and autonomous
- Objective is to maximise profit and minimize grid volatility
- Blockchain provides technical and economical solution
- Synergy of Blockchain and Energy for greater benefit



# Literature

- B. Bijelić, M. Hercog, G. Horvat, I. Ostheimer and M. Vukobratović, "Modeling Energy Aspects of ASIC Hardware for PoW Applications," 2022 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO), Opatija, Croatia, 2022, pp. 60-64., doi: 10.23919/MIPRO55190.2022.9803561
- L. Župan, I. Ostheimer, F. Horvat and M. Vukobratović, "Small Energy Prosumer Revenue Diversification with ASIC hardware," 2022 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO), Opatija, Croatia, 2022, pp. 44-49., doi: 10.23919/MIPRO55190.2022.9803360
- I. Ostheimer, L. Župan, G. Horvat, M. Vukobratović and Z. Balkić, "Energy to Digital Asset Conversion as a Business Model for Complex Energy Systems," 2022 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO), Opatija, Croatia, 2022, pp. 71-76., doi: 10.23919/MIPRO55190.2022.9803429
- I. Ostheimer, G. Horvat, M. Vukobratović, B. Bijelić and Z. Balkić, "PoW Blockchain infrastructure as a novel approach to power system balancing," 2022 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO), Opatija, Croatia, 2022, pp. 77-82., doi: 10.23919/MIPRO55190.2022.9803439