

Oxford Energy Day 2024

Equity in the Global Energy Transition

Community and Distributed Energy: Benefits and Concerns

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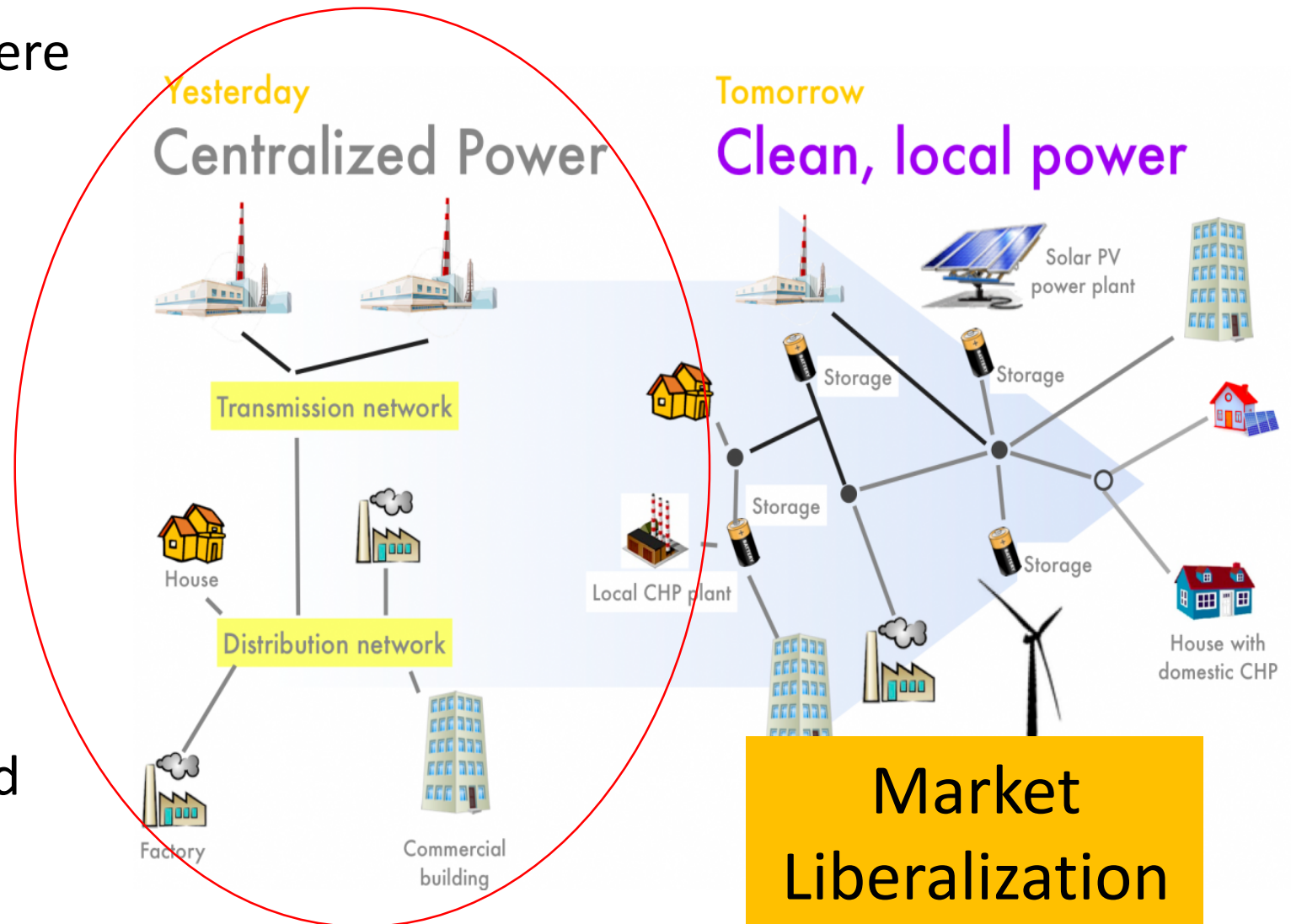
אוניברסיטת רייכמן
בית הספר לקיימות
מייסודן של החברה לישראל,
כיל ובזן



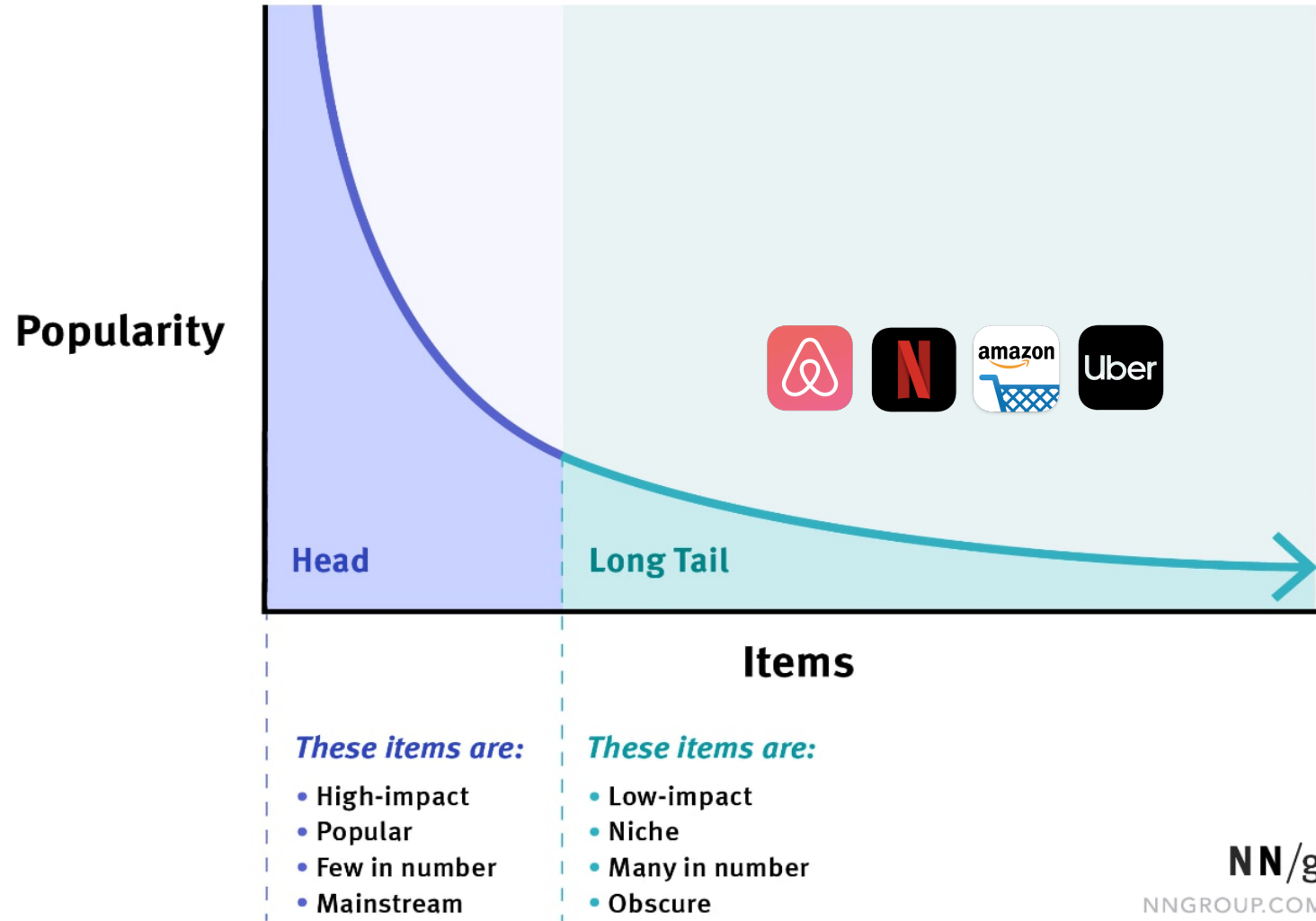
Sustainable Electricity System(s)

Can provide everyone anywhere with electricity that is

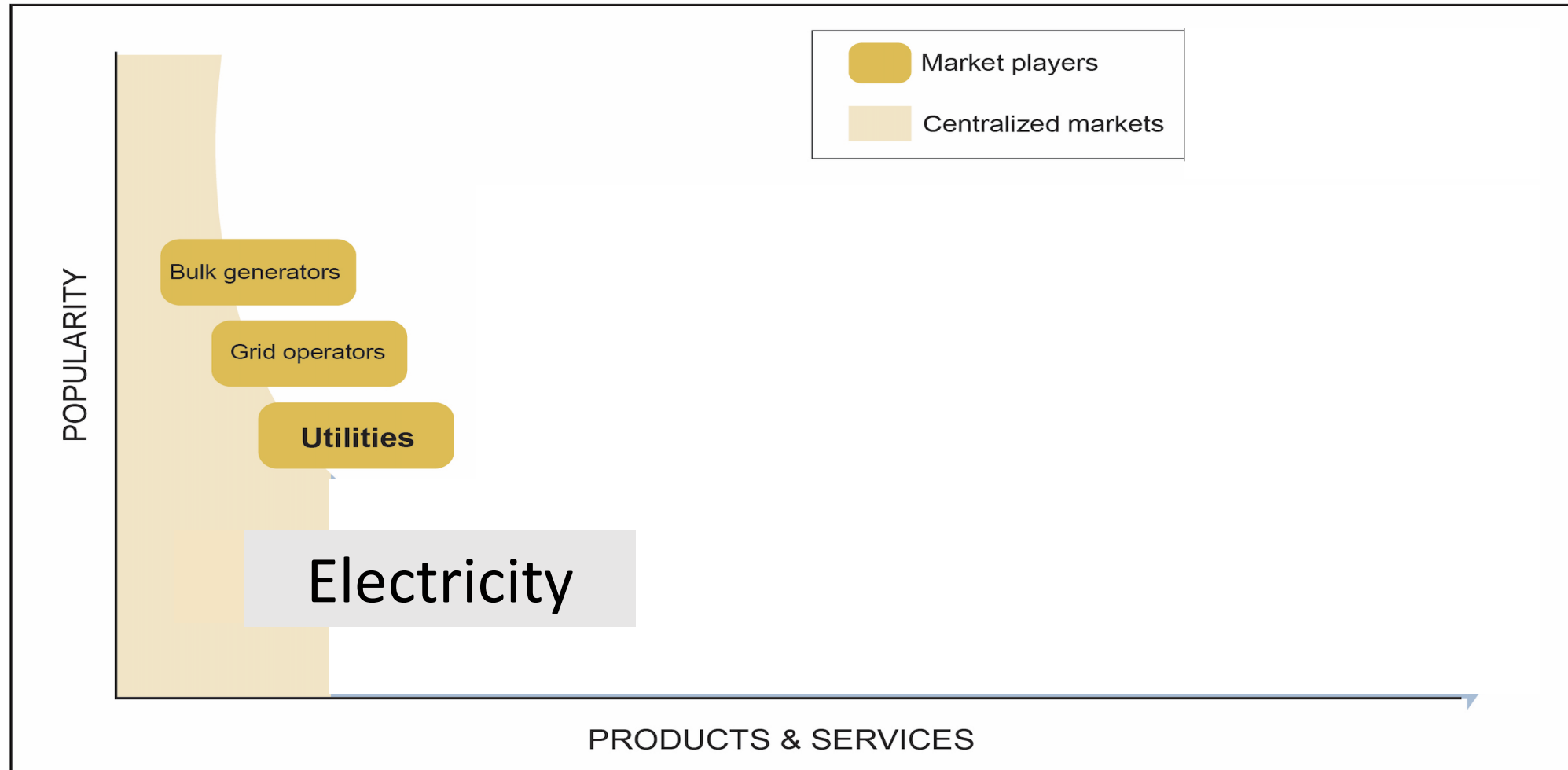
- Available
- Reliable
- Affordable
- Sustainable
- Resilient system
 - Protected from threats
 - Can bounce back quickly
- In community & distributed setting (?)
 - Resilient energy services



The Long Tail



- A term coined by Chris Anderson in 2004
- Liberalized markets
- Enabled by the spread of IT
- A phenomenon where a significant portion of total sales comes from items that are not popular or mainstream but rather from many niche products.
- The long tail concept suggests that by offering a wide selection of niche products, businesses can tap into markets that were previously overlooked or underserved.
- This can lead to increased sales, customer satisfaction, and overall business growth.



Resources at the Edge enabled by Smart Grids: in front and behind the meter



Microgeneration
Flexible loads
Storage

Consumers => **Prosumers**

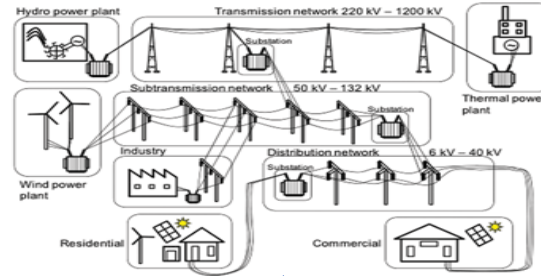
Supply-----Demand

Providers --- Recipients



Resources at the Edge of the Grid

Storage



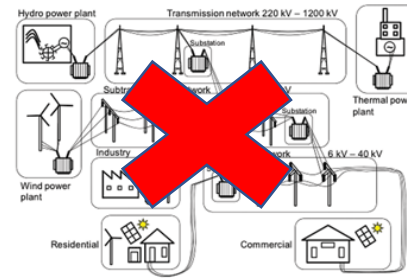
Flexibility



Generation



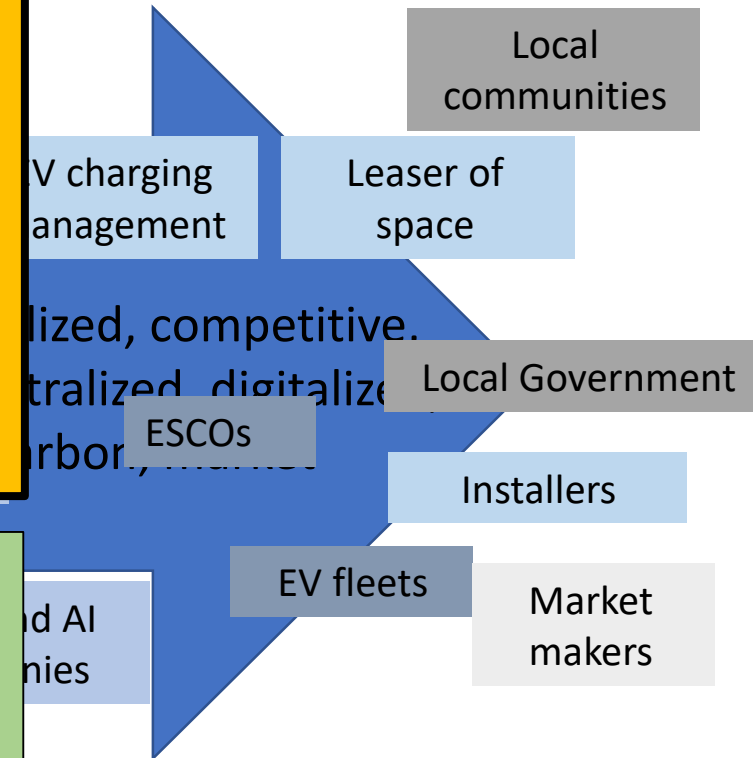
Microgrids
Local communities
Individual prosumers



Evolving Energy Landscape: New Players

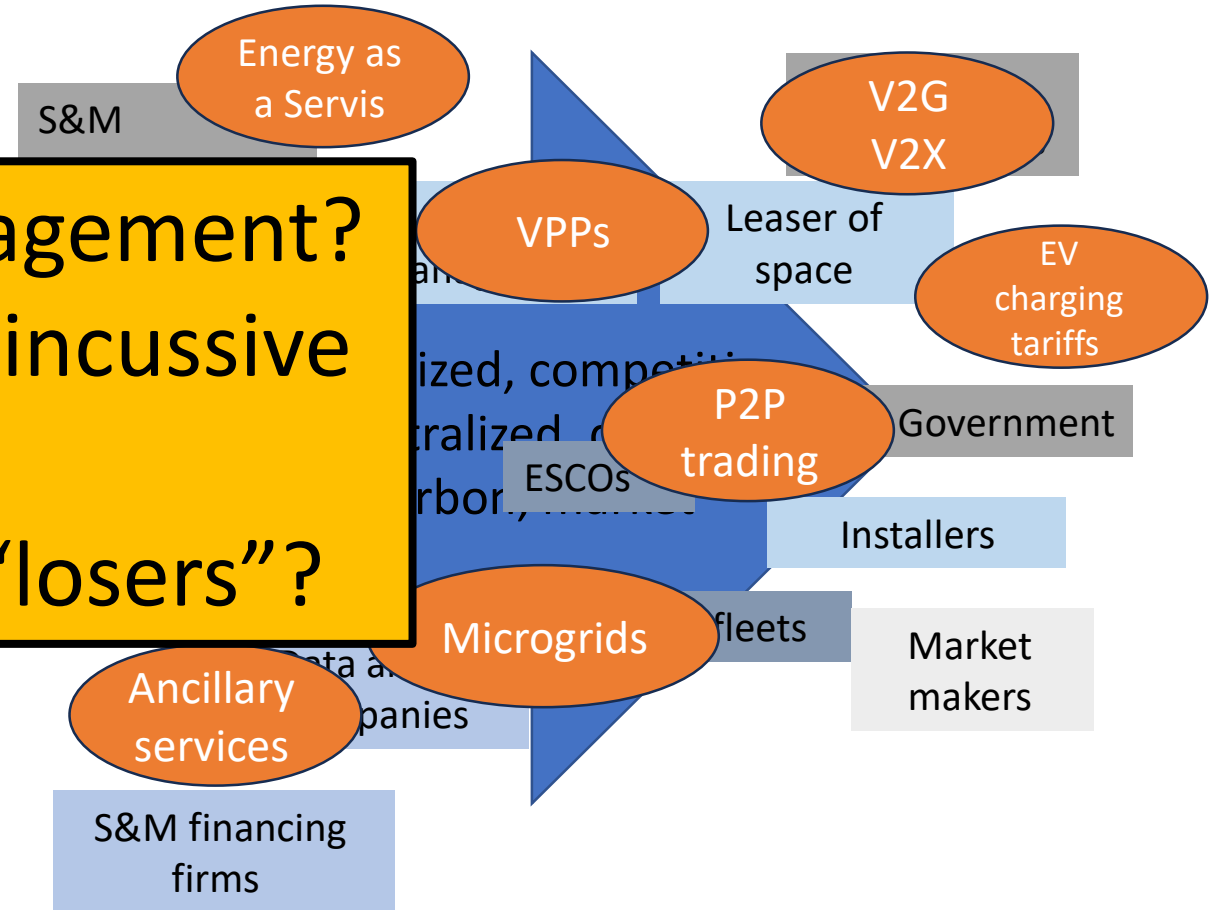
Who are the new players?
What motivates them to participate in
the market?
What are their financial and
operational capabilities?

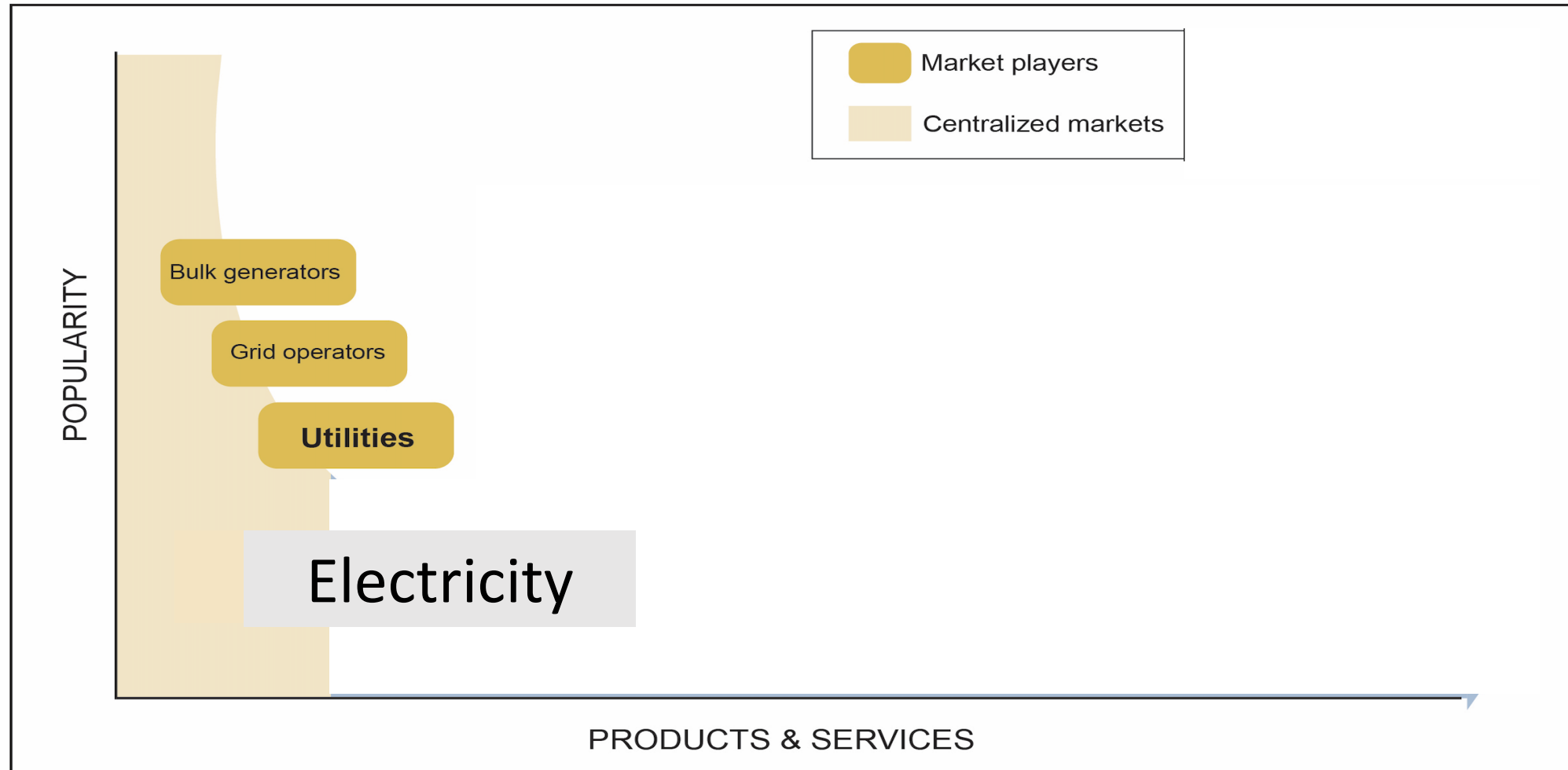
How could the new actors impact
consumers' access to available, reliable,
affordable and sustainable energy services?
Is the new system more resilient?



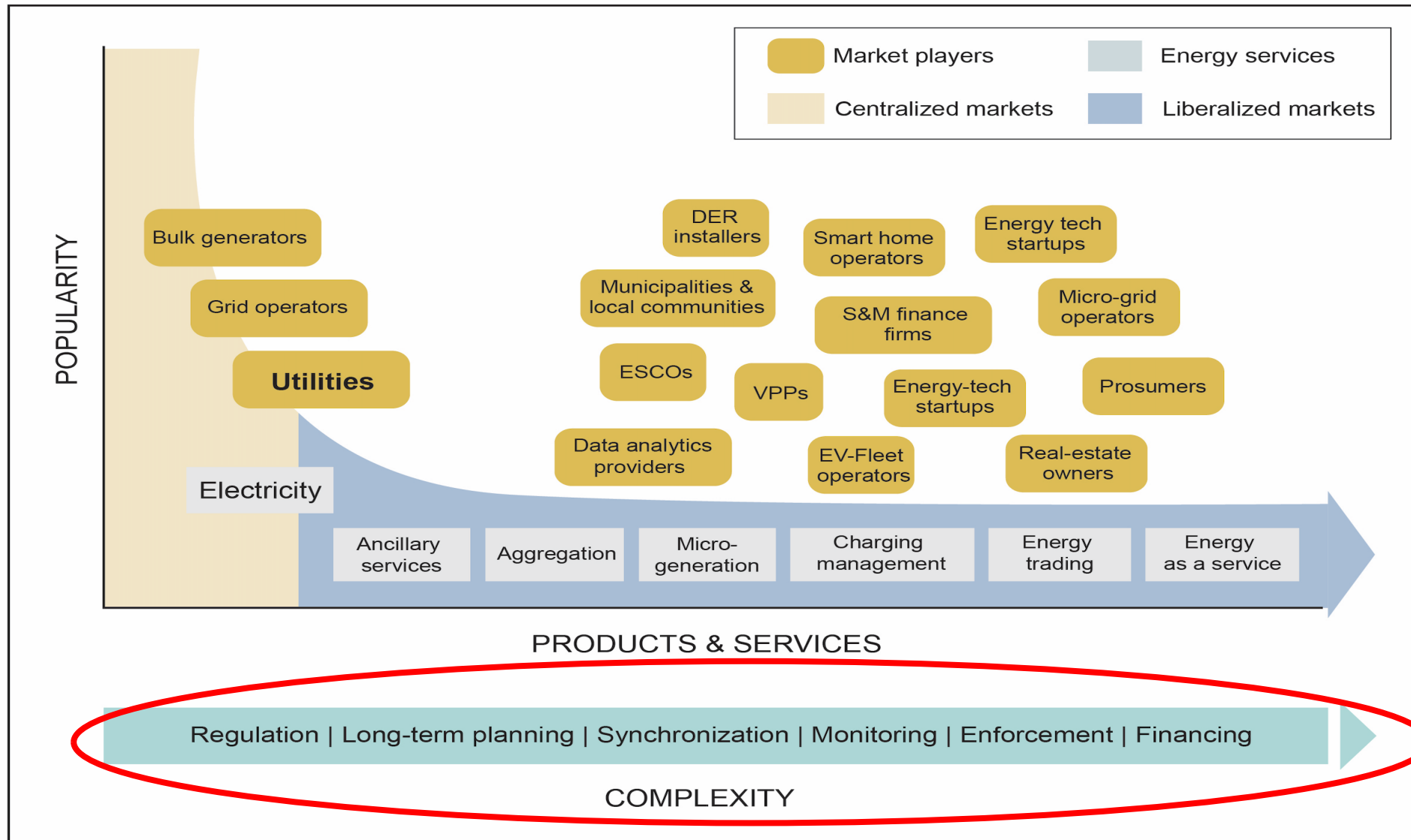
Evolving Energy Landscape: New Business Models

New motivations for engagement?
Are the business models inclusive
and fair?
Are there “winner” and “losers”?





long tailed system



Implications for Demand Dide

Greater policy complexity & uncertainty

Regulation, long-term planning, synchronization, electricity & service quality, cyber, training, skilled manpower, enforcement

Availability

- Long-term investments in prosuming infrastructures
- Access to resources and services anywhere
- The quality of resources and services
- Sufficient reserve

Resiliency

- Liability
- Infrastructure protection
- New threats
- Resilience of energy services
- Resilience of consumers

Cost

- Who pays and for what?
- Return on Investment (ROI) period
- Regulatory certainty

Environment

- Environmental monitoring (emissions)
- Resource siting & land use
- New Waste streams

Equity and fairness

- Good energy services to all
- Affordability

We need new avaluation criteria and indicies for measuring and evaluating the performances of energy community

Thank you for listening

- Parag, Y., Zemah-Shamir, S., Shaviv, E., & Teschner, N. (2024). The evolving long tail at the edge of the grid: Benefits and concerns. *Joule*.

