



 OCTOBER 8 & 9  DOWNEY, CA

# ET Summit Fall 2018

COMMERCIAL + RESIDENTIAL BUILDINGS

# Innovations in Intelligent Energy Storage

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# Energy Market Change

## Trends

Global and Local Climate Agreements

Affordable Renewable energy

Decentralization

Digitalization

Decarbonization

Electrification

Integrated Energy

## Impact

**Prosumers**  
 People produce and consume their own power with PV + storage. Future utilities have to provide new products

**Virtual Power Plant (VPP)**  
 Decentralized ownership structures for renewable energy systems. Future utilities have to connect a large number of different participants

**Increasing Volatility**  
 High penetration of renewables increases volatility on the production side which affects energy prices

**Flexibility is King**  
 Bringing flexibility into production, consumption and the grid will enable attractive revenue streams

**Energy Services**  
 Customers will prefer clean and affordable energy services instead of only kWh

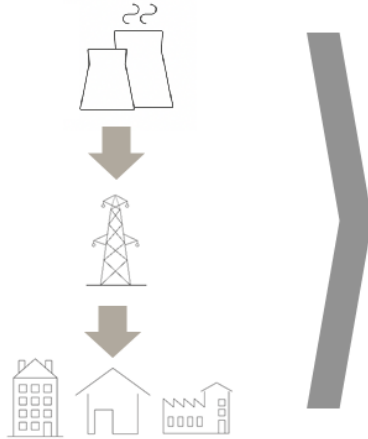
**Data Access**  
 Assets like the SonnenBatterie or Smart Meters will provide a large amount of data, which can be used for attractive new business models

**Decreasing Grid Service Capacities**  
 Since conventional power plants are disconnected from the grid, grid service capacities will decrease while demand increases due to higher volatility

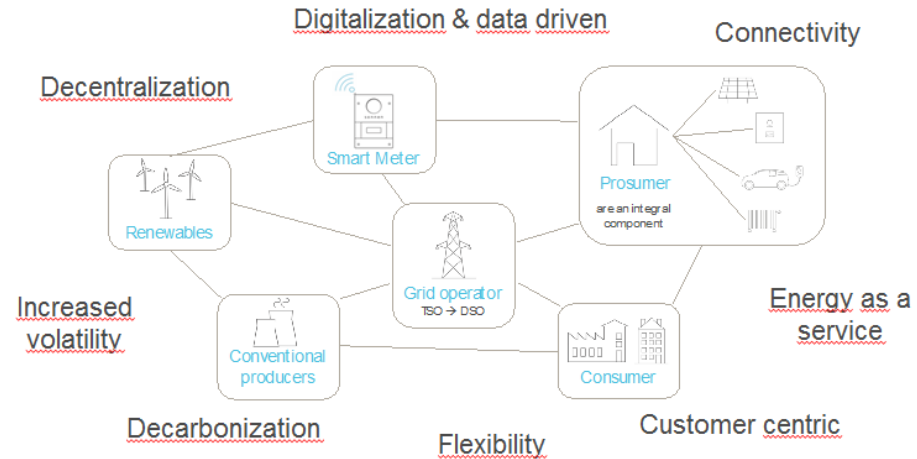
**System Operators**  
 Due to decentralization, Distribution System Operators (DSOs) will likely gain in importance vs. Transmission System Operators (TSOs)

# Future Energy Ecosystem

## Classic ecosystem



## Future energy ecosystem



Create a Community that intelligently connects, integrates, and manages all participants of the future energy ecosystem.

# VPP Evolution

one battery

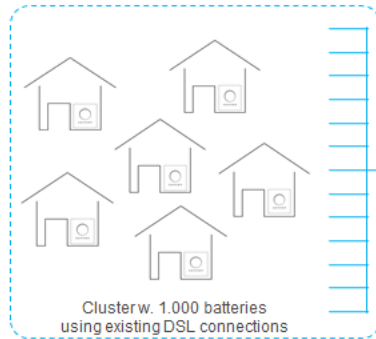


Smart Home & Storage,  
using Mobile Connection

inc.VPP  
(GSM / LTE)

- first step
- minimum data access

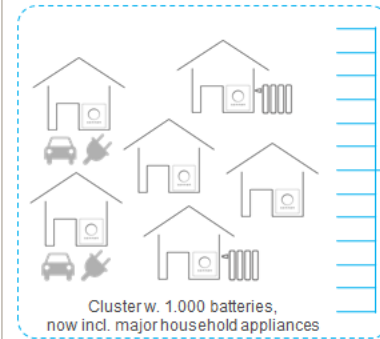
community cluster



sonnenVPP

- ESS design for VPP
- asset making: 2 MW / Cluster
- full data access

community cluster

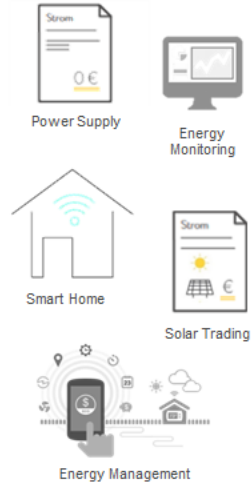


sonnenVPP

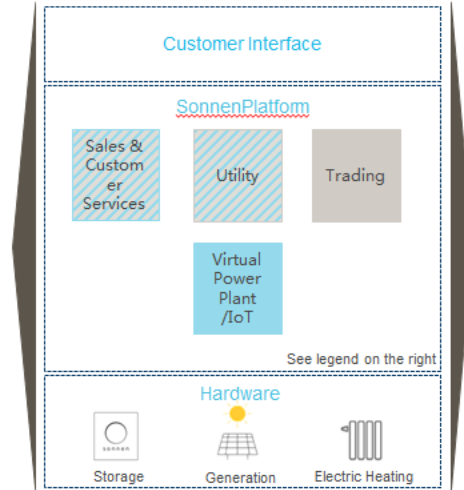
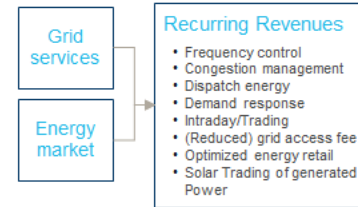
- asset making: 4 MW / Cluster
- highly valuable Data insight
- extended data access

# Platform




## Customer products



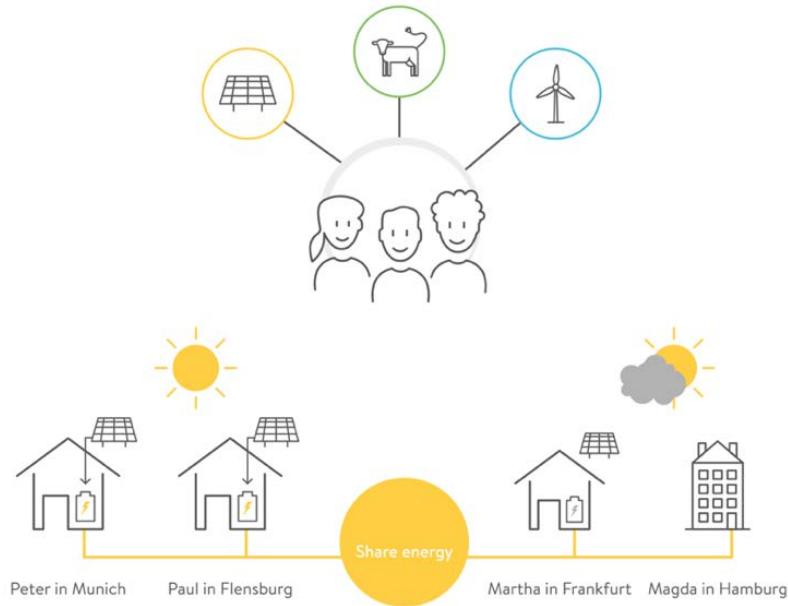
## Markets



### Legend

-  sonnen
-  Customizable for each country sonnen or 3rd party
-  Customizable for each country via 3rd party

# In Closing



- Expanding the concept of energy as a service
- Validating the role of the prosumer in the energy market landscape through P2P value propositions
- Making residential energy storage relevant to utilities through our VPP platform
- Increasing grid resiliency by adding off-grid capabilities to homeowners
- Bringing Energy Automation and enhancing the home of the future

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