

# Services from battery energy storage and their role in Europe`s energy framework

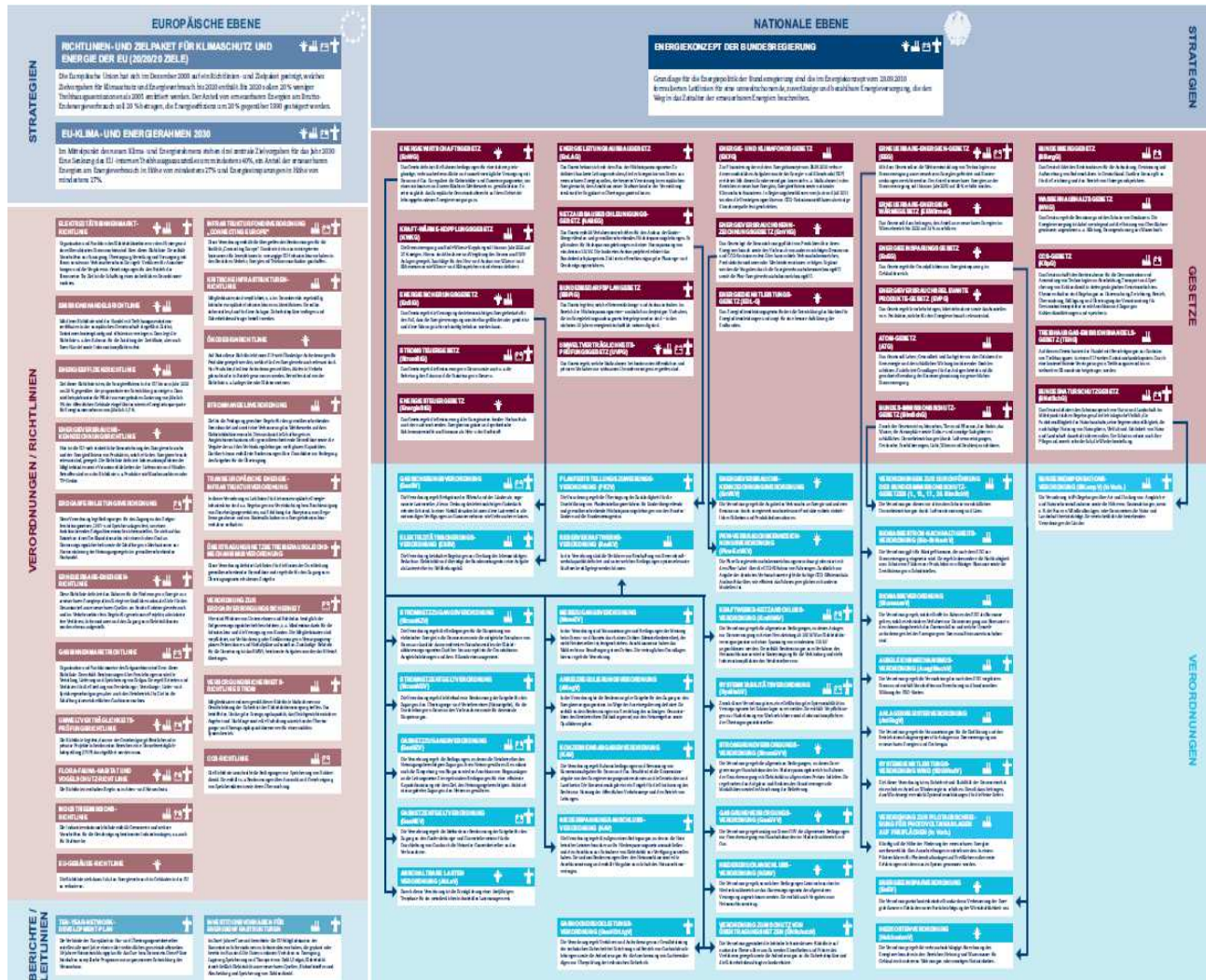
## An Utility Perspective >

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# The energy market in Germany is highly regulated...



- 55 regulations at national level
- More at county level
- Regulation driven vers. market driven business models
- Regulation driven Business Models can be total different in the world – and can change from day to day

# New Energy Storage Applications

## A short overview for Germany



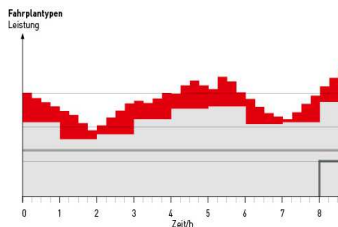
### Transmission Grid (TSO)

- Long term storage need will rise from around 2025/2030, Power2Gas
- For short term flexibility (balancing power) using existing flexibilities is cheaper
- Maybe in the future: Special grid/system service applications for batteries



### Distribution grid (DSO)

- Copper is cheaper
- Installed batteries at customers side have to improve grid stability
- Maybe in the future special grid/system service applications for batteries



### Energy trading and purchasing

- Using existing flexibilities is cheaper (no new asset investments)

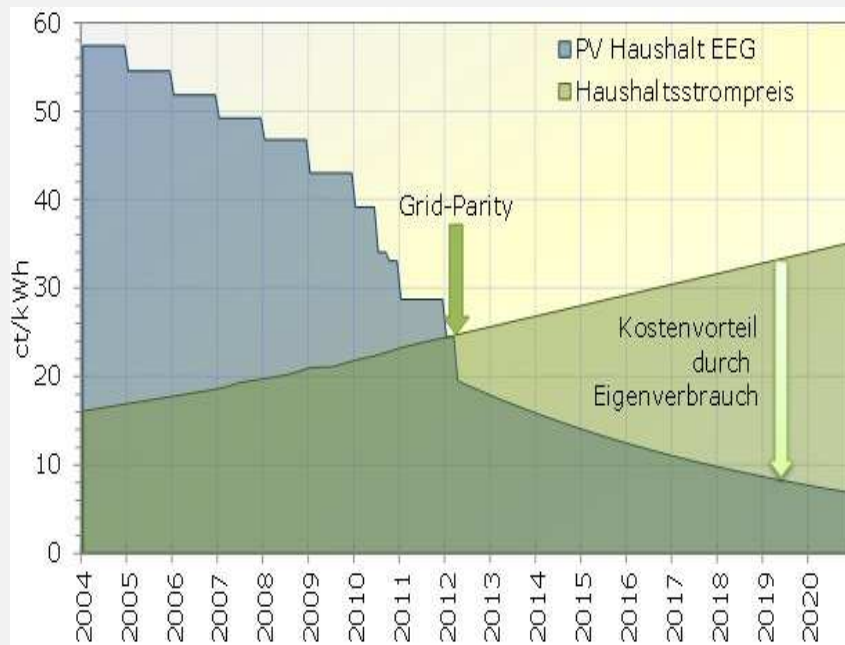


### Customer Side

- Residential Home: Optimizing self-production against different reallocation charges (feed in law, grid fees, taxes): growing market
- Commerce and industrial: Load Management and optimizing self-production: Only niche market today

# *B2C PV Storages* or *What is the promise to the customer? 1/2*

## *Typical prediction of price development*



Source: Der fortschrittliche Landwirt 14/2012 S.70-71

## *High uncertainties for us and our customer*

### **Regulation: Relevant running discussions and actions**

- Stop of battery support program (KfW)? ("10,000 house program")
- Rise of grid usage price due to grid extension?
- Balancing grid usage prices from working costs to fix costs?
- Dynamic grid usage prices?
- Feed-In-Law reallocation?
- Energy Tax?

### **Technology and Market**

- Reduction of storage prices
- Rise of electricity price

*Can we really forecast the development of the cost advantage?*

# B2C PV Storages or What is the promise to your customer? 2/2

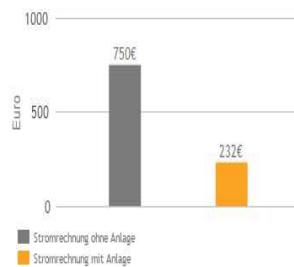


## Our Promises

### No return-on-investment promises...

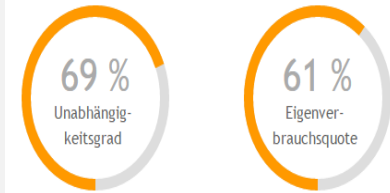
but communication of reduction of electricity bill and higher independence from increasing electricity price

Betrag auf Ihrer jährlichen Stromrechnung

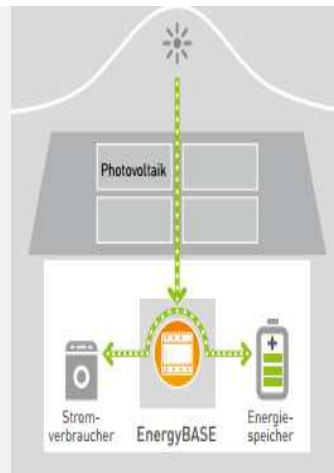


### Green Image: Reduction of carbon emissions and increase in self-sufficiency

Energie-Selbstversorger mit der EnBW EnergyBASE



It is more about (technology) features to have more USPs compared with competitors (**value for money**)

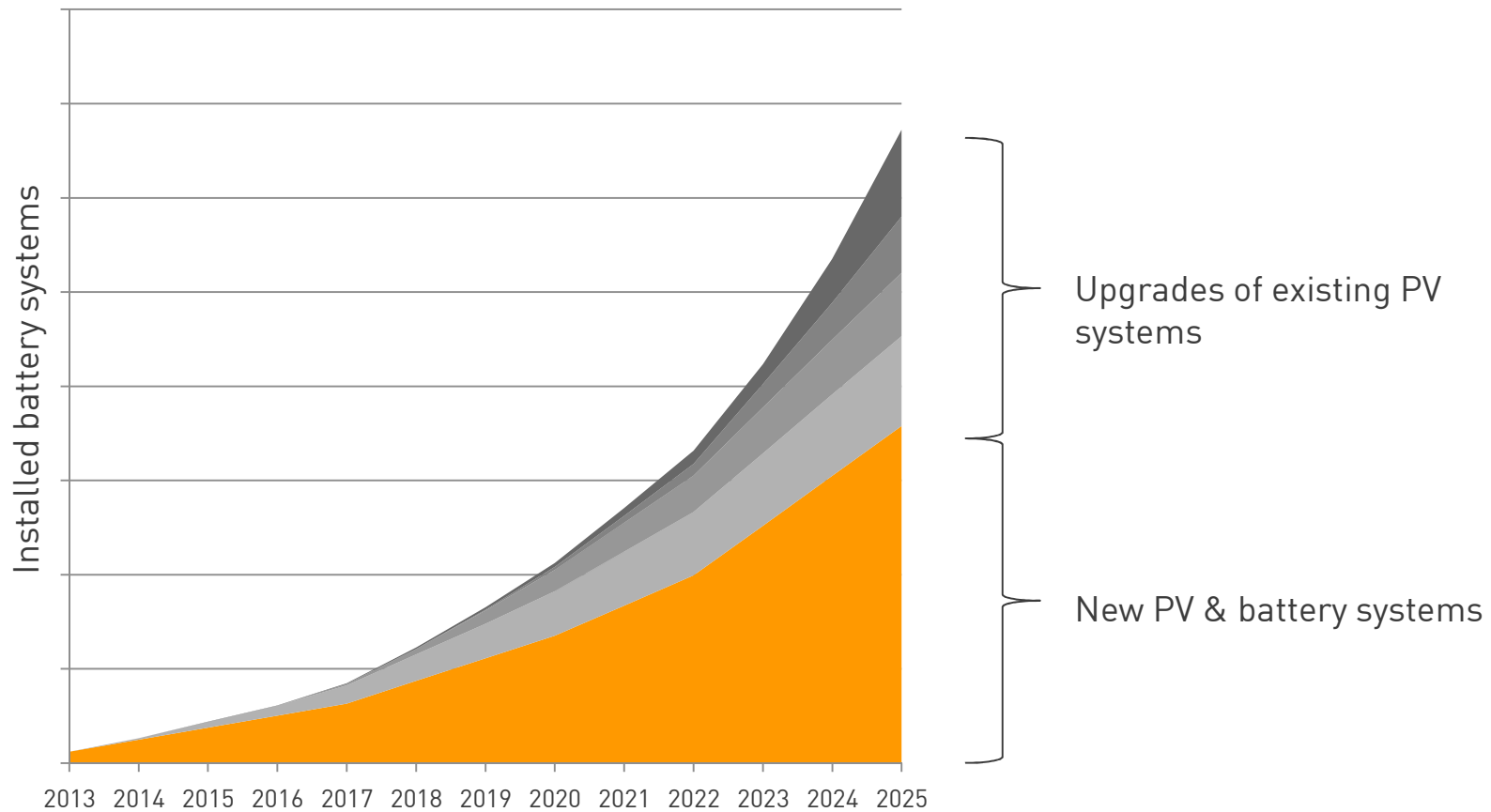


Selling process is not driven by financial rationale, it is driven by **emotions...**

as it is with premium cars



# Expected residential market development for Germany 50% in 2025 will be upgrades of existing PV-Systems



# Beware of the hype cycle of Innovation



## Contact



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