

+ WEBINAR

Cómo Construir y Promover Fotovoltaica con Almacenamiento?

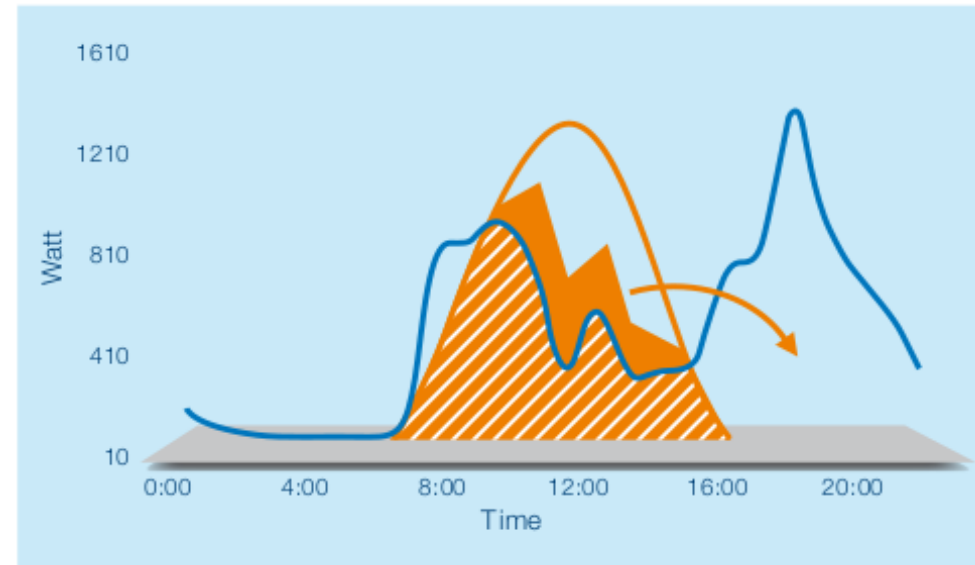
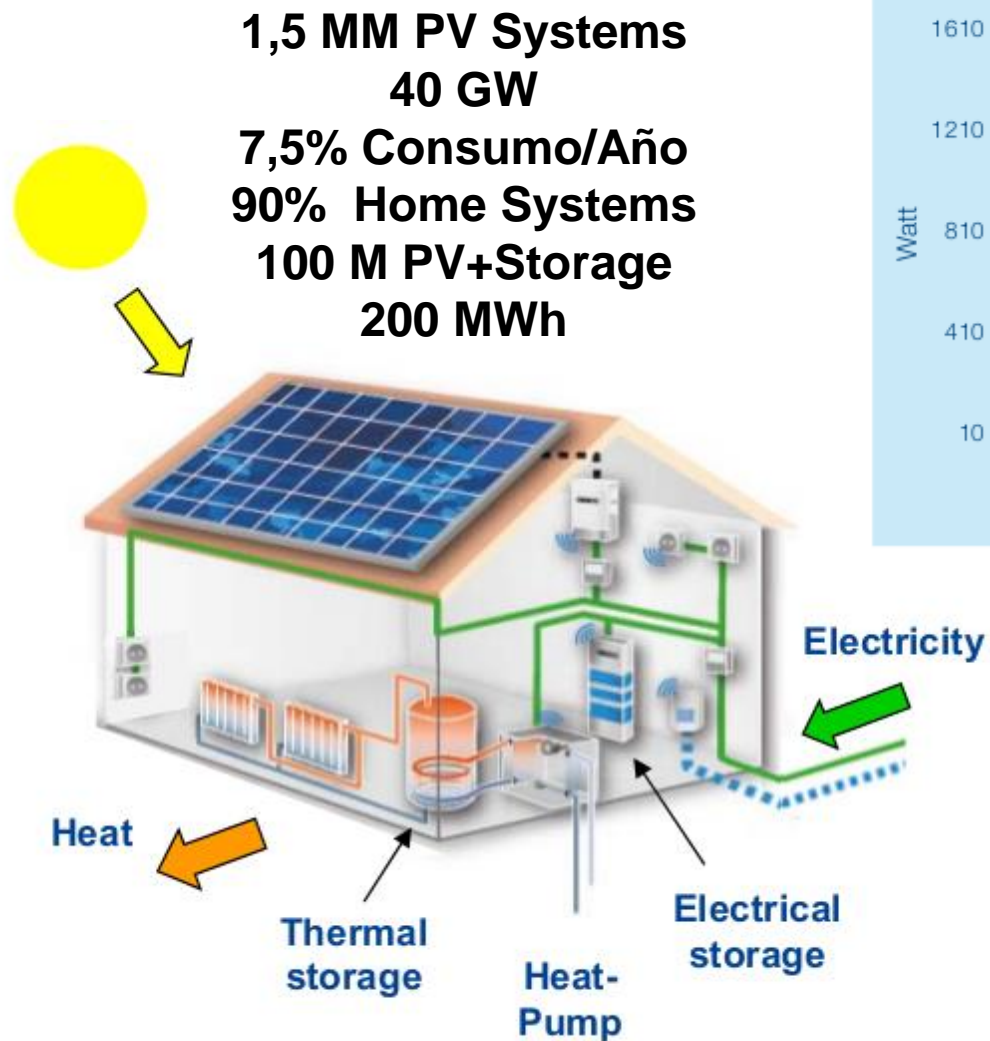
Alberto Ríos Villacorta



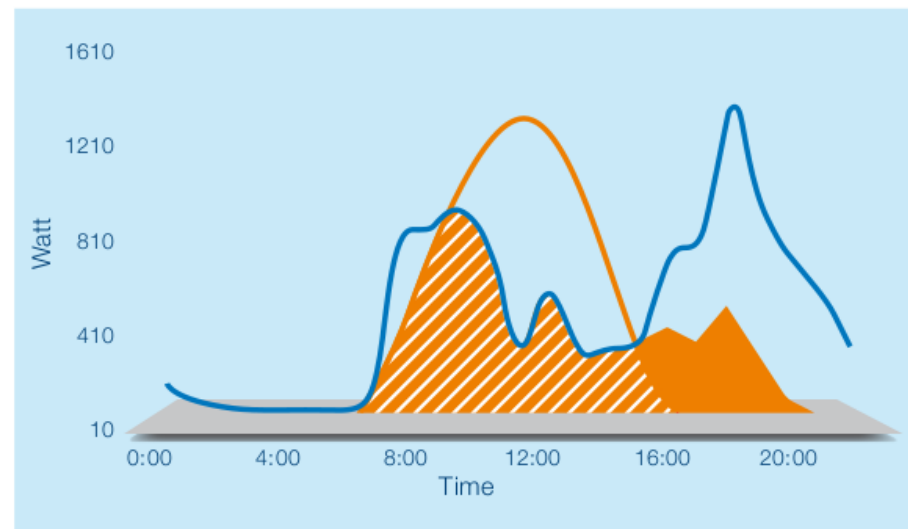
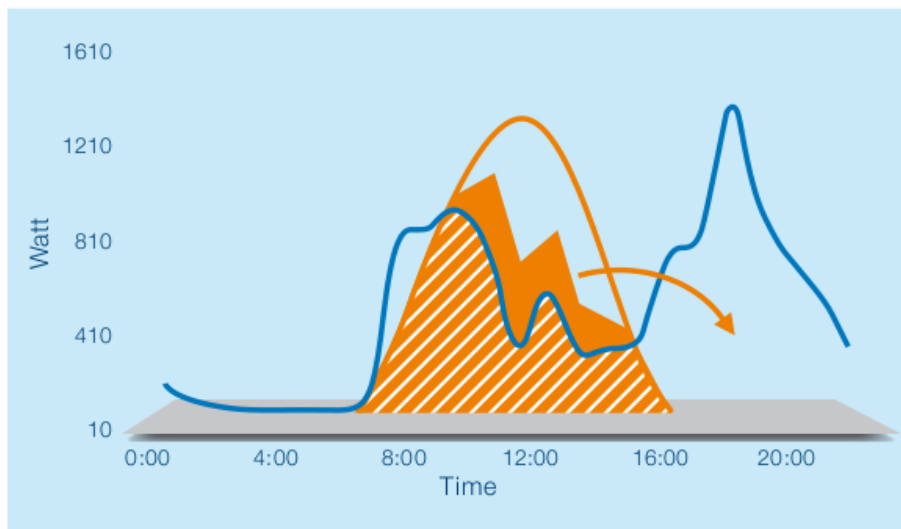
a.rios@uta.edu.ec



SOLAR HOME – OWN POWER PLANT

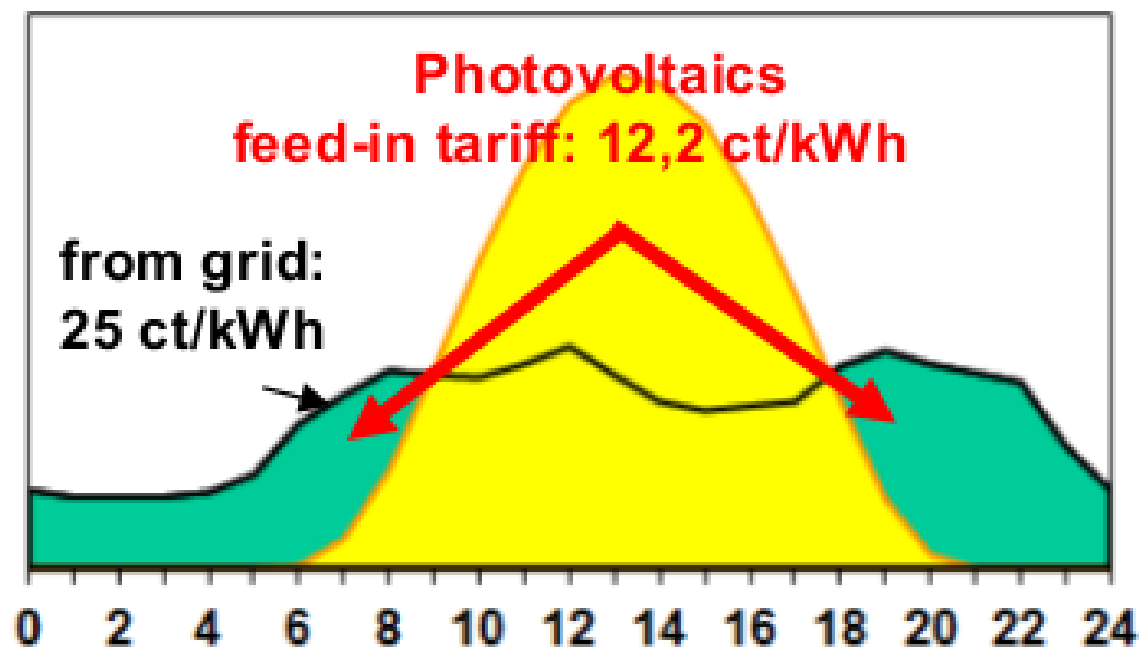


- Energy consumption
- Photovoltaic energy
- ▨ Self-consumption
- Battery



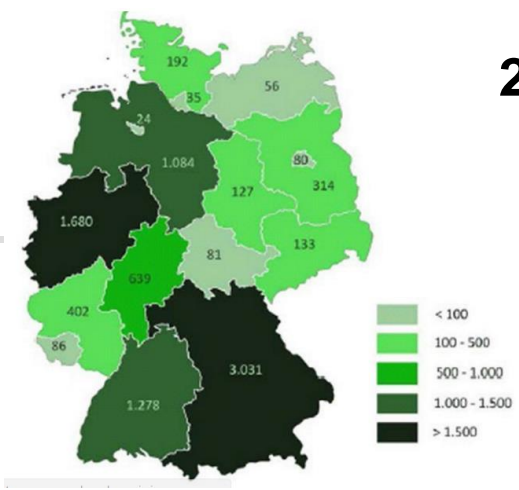
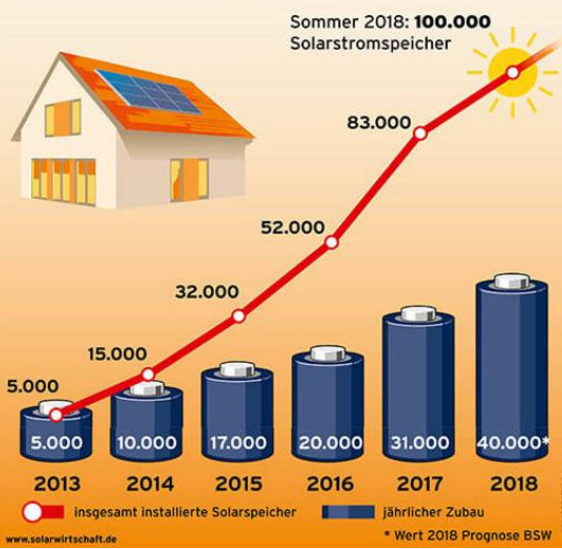
— Energy consumption
 — Photovoltaic energy
 Self-consumption
 Battery

500 €/kWp
 100 M PV+Storage
 2013-2017 -50%

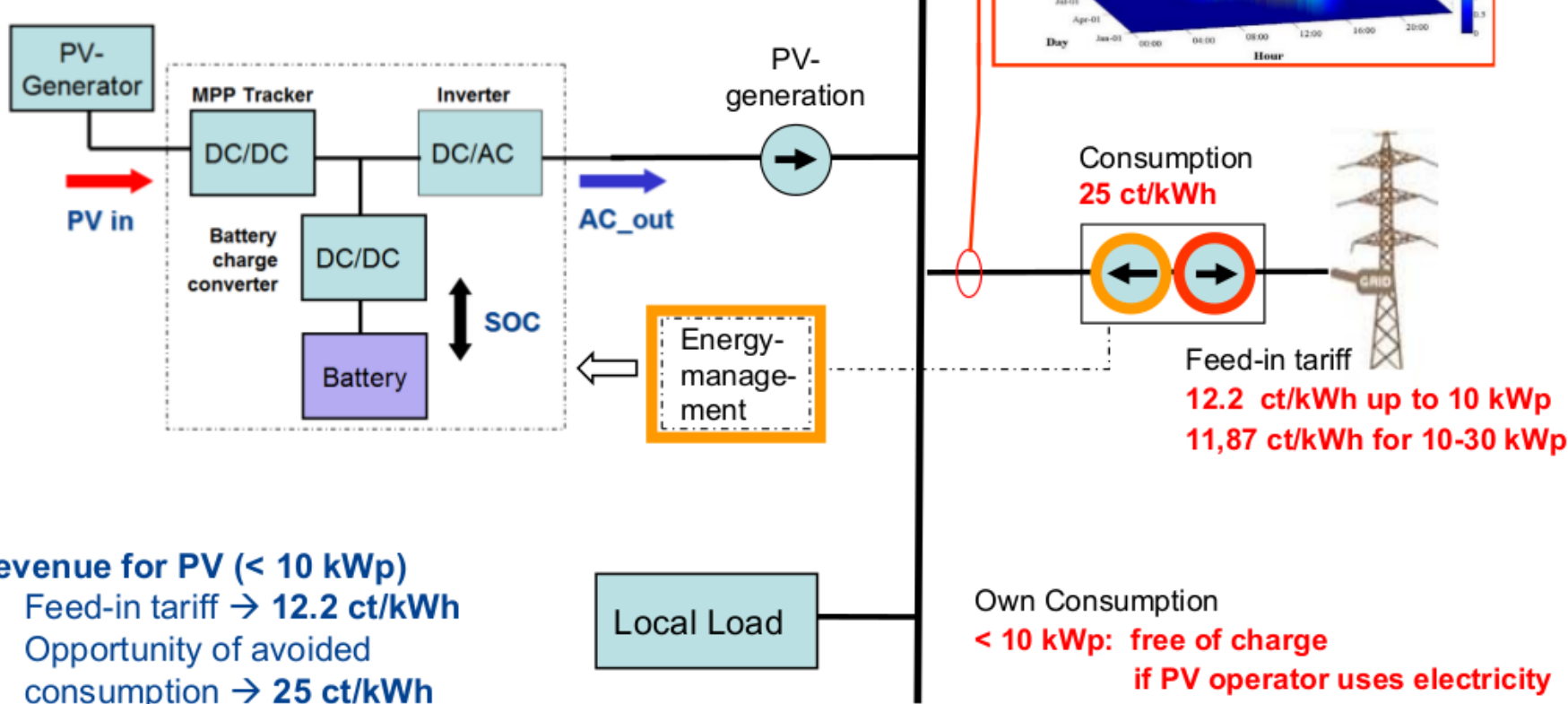
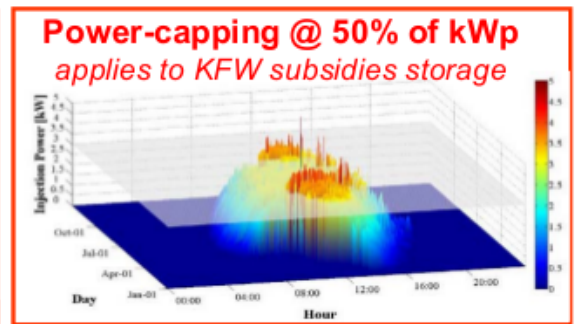


Solarstromspeicher erreichen Meilenstein

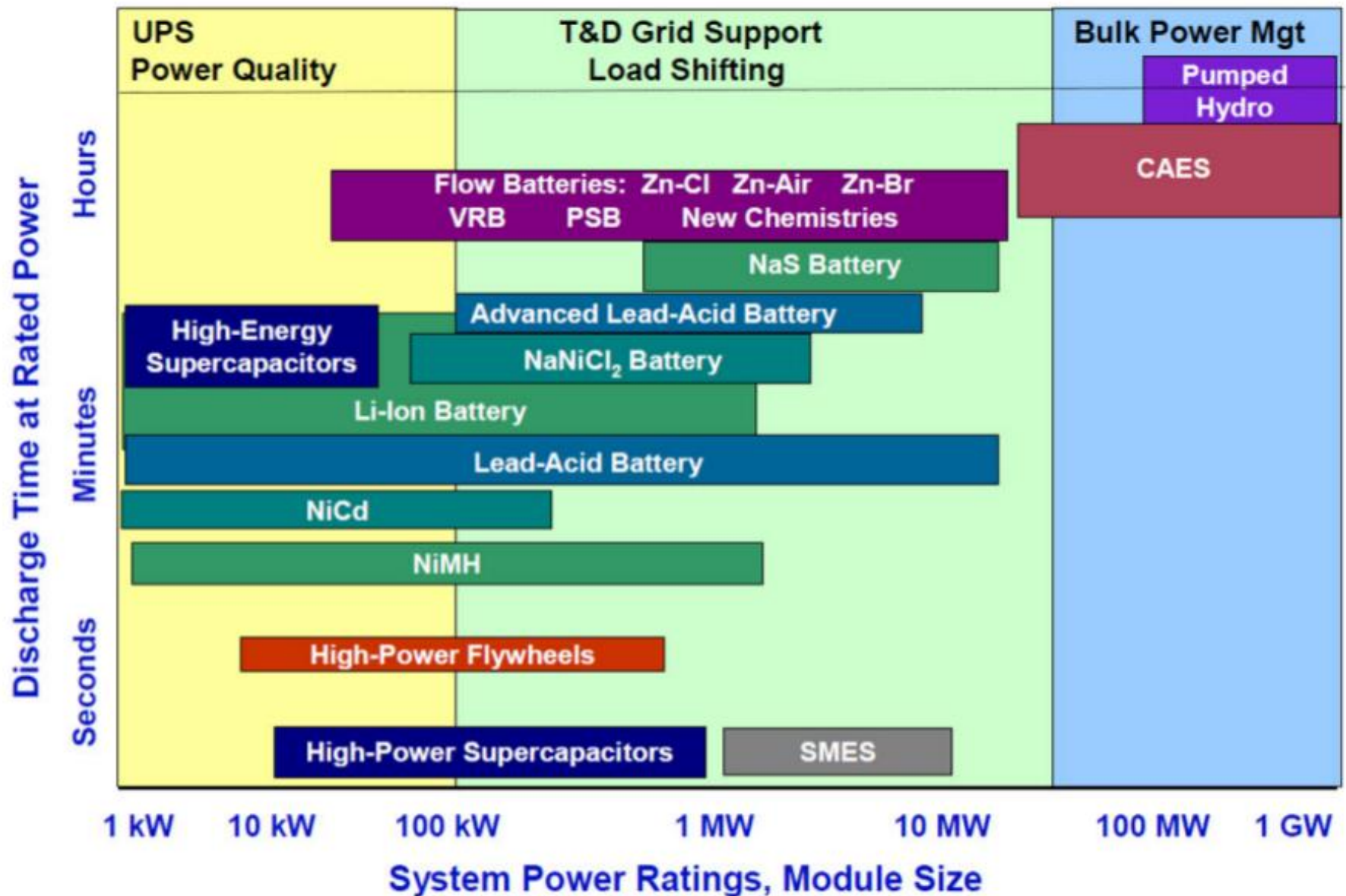
Schon jede zweite Photovoltaikanlage mit Solarstromspeicher



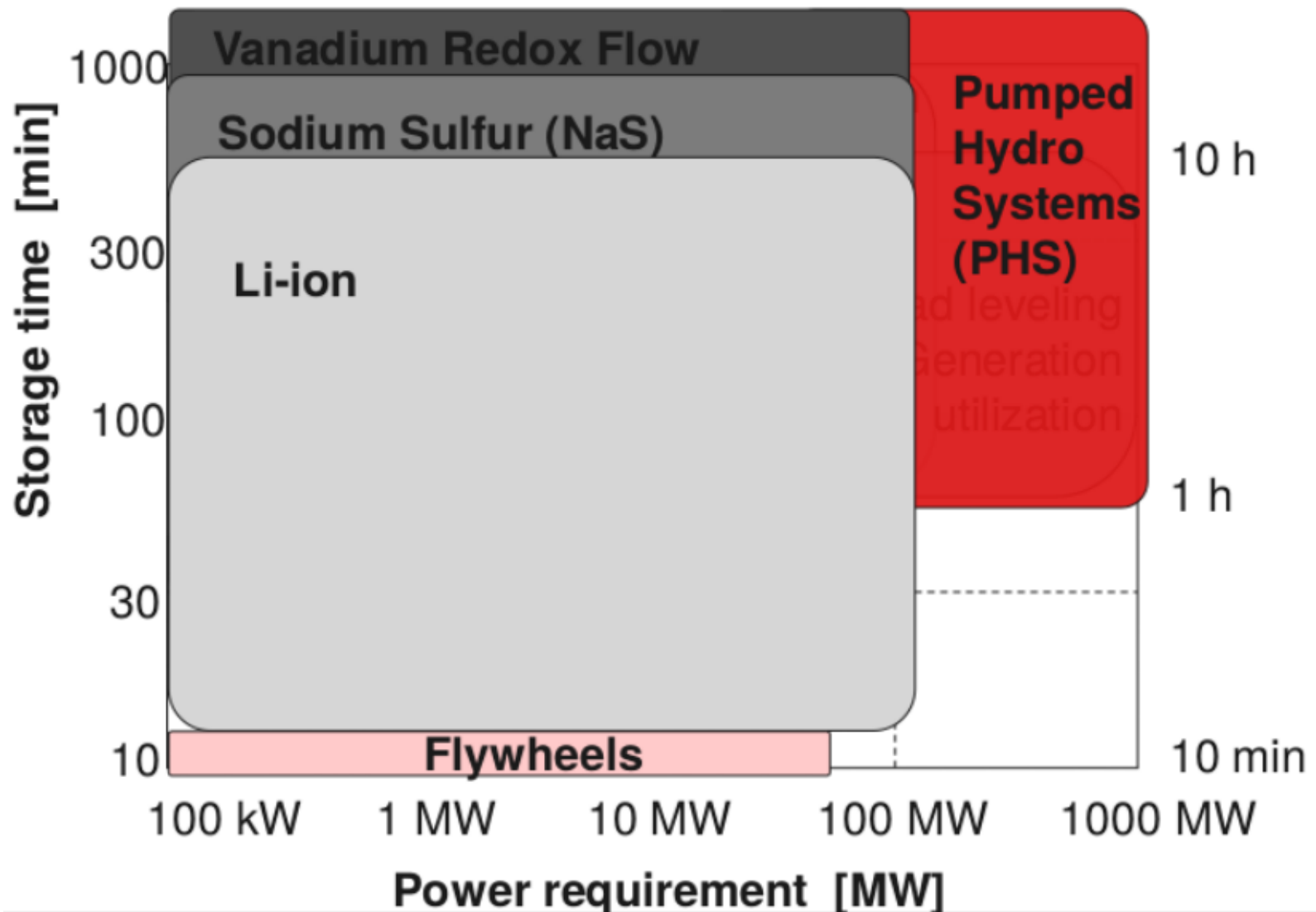
2 years – 200 M PV+Storage



BATTERY TECHNOLOGY



BATTERY TECHNOLOGY



BATTERY USAGE

ENERGY STORAGE SITING

Behind-the-Meter

Front of the Meter

Back-up power: batteries can be used to provide back-up power in case of power outages



Self-consumption: in places where retail tariffs are higher than the cost of generating roof-top PV, consumers will prefer using PV generation rather than store it. Batteries can be used to maximize the amount of PV self-consumed



Managing peak demand charges: batteries can help to smooth peak demand in building's load profile



Managing peak demand charges: batteries can help to smooth peak demand in building's load profile



Ancillary services: Services performed for grid operators to maintain grid balance. Currently driven by frequency regulation/primary reserve



Peaking capacity: Capacity required to meet peak times during the day or during exceptional events



Renewables firming and integration: Battery storage can be added to smooth renewable generation and improve dispatchability

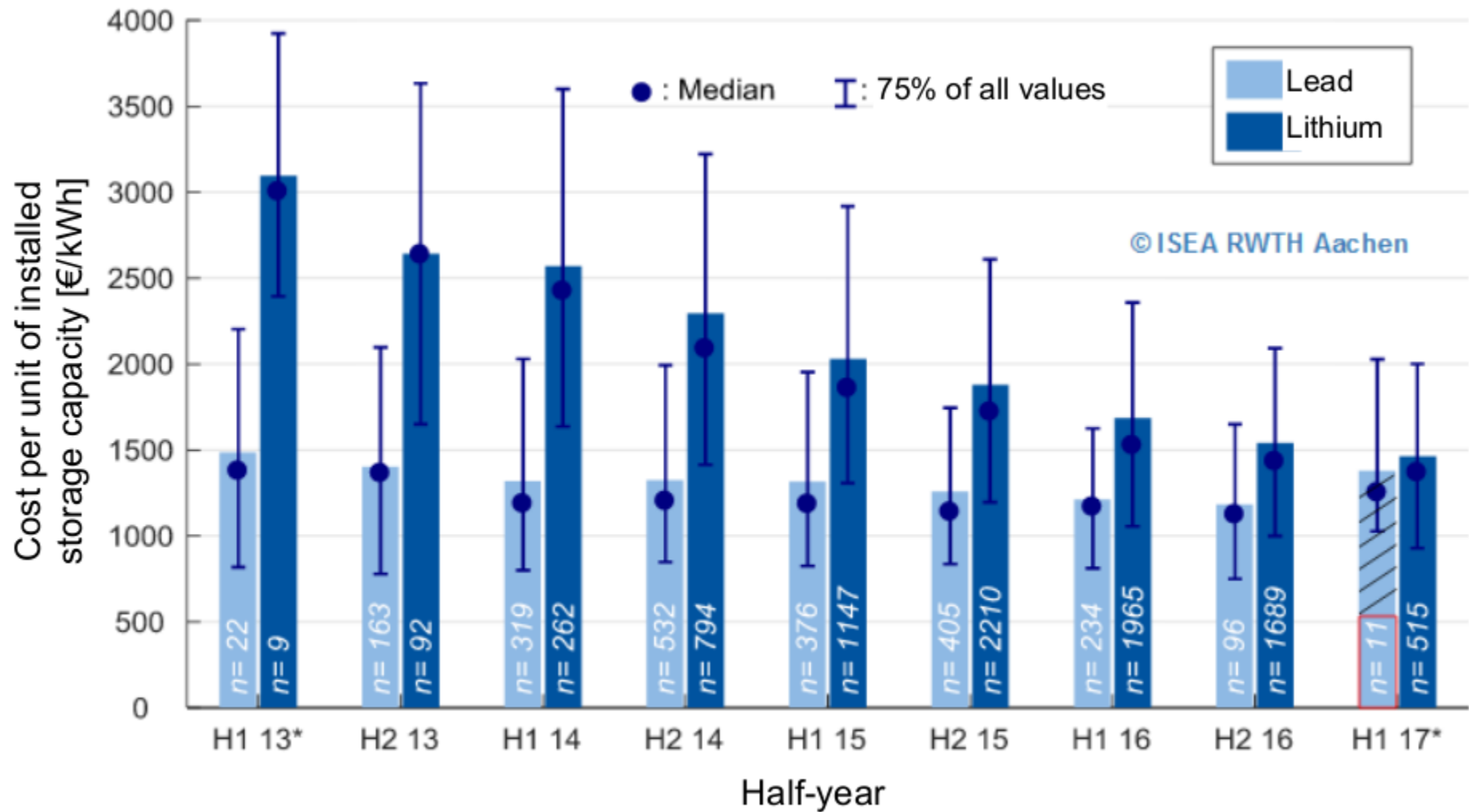


Minutes (high capacity)

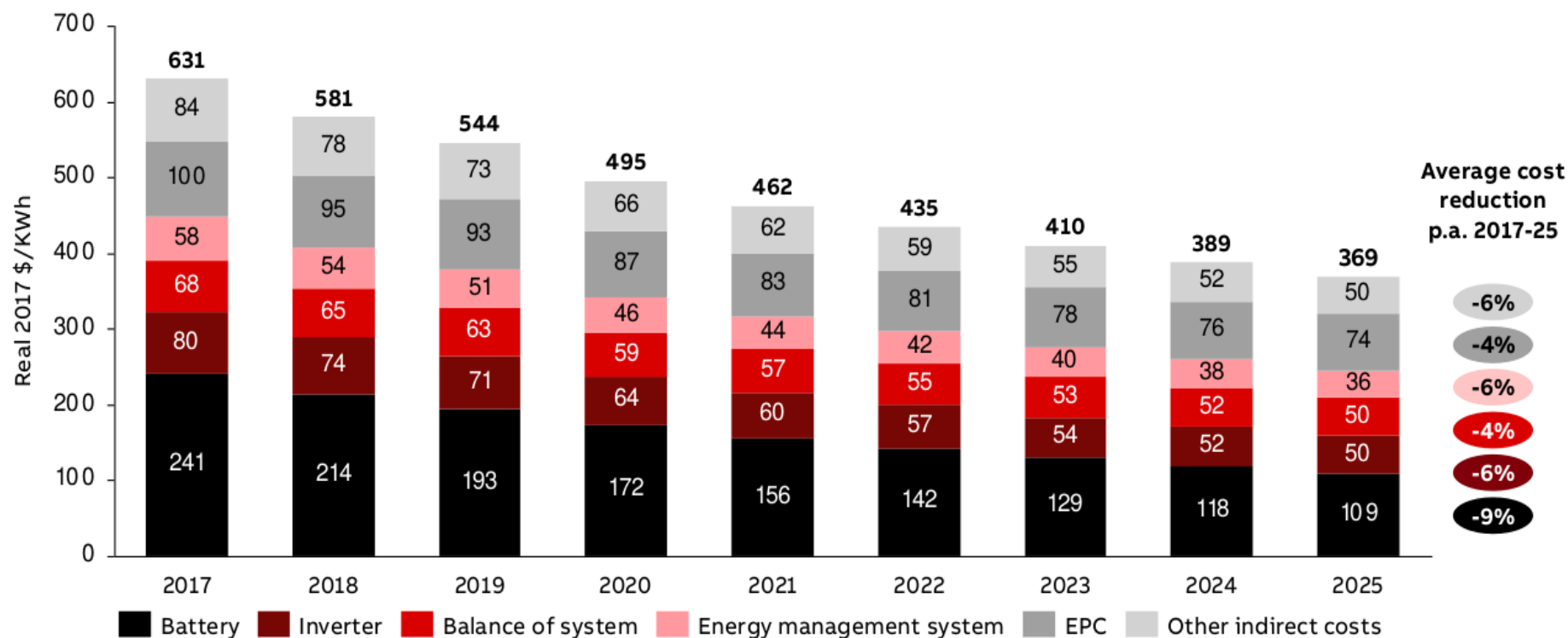
Hours (high energy)

POWER STORAGE USAGE

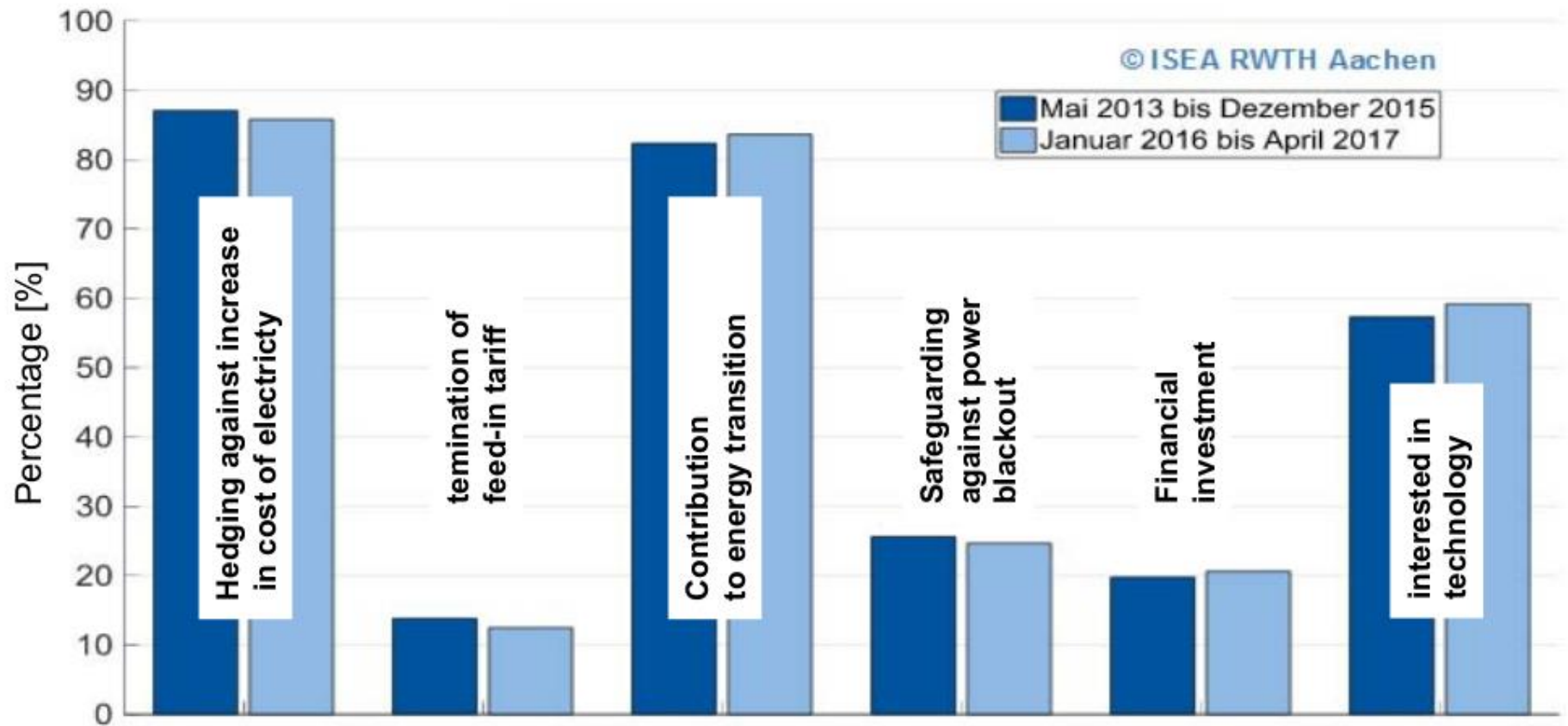
STORAGE SYSTEM COST REDUCTION



STORAGE SYSTEM COST REDUCTION



CUSTOMERS MOTIVATION



Eigenverbrauch in Deutschland und Frankreich:
Rechtsrahmen und Geschäftsmodelle
*L'autoconsommation en France et en Allemagne:
cadres réglementaires et modèles d'affaires*

May 10th, 2018 - Paris

PV Storage and Own-Consumption in the residential sector in Germany

Dr. Jann Binder

Zentrum für Sonnenenergie- und Wasserstoff-Forschung
Baden-Württemberg (ZSW)
*Centre de recherche sur l'énergie solaire photovoltaïque et l'hydrogène
du Bade-Wurtemberg*



www.zsw-bw.de

ELECTRICITY STORAGE AND RENEWABLES: COSTS AND MARKETS TO 2030



Energy Storage for micro- and mini- grids in urban and rural Africa

Maxine Ghavi, Group SVP, Program Director Microgrid, ABB

+ WEBINAR

Cómo Construir y Promover Fotovoltaica con Almacenamiento?

Dr. Ing. Alberto Ríos Villacorta



a.rios@uta.edu.ec

