

Speicher für die Energiewende – DFBEE

RRKW Feldheim – Primary Frequency Control in a wind feed-in grid

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In a nutshell



150 employees

712 turnkey systems (1,223 MW installed power)

682 systems under management 1,224 MW

18 turnkey substations with 1,583 MVA installed
(Status: 31.12.2015)

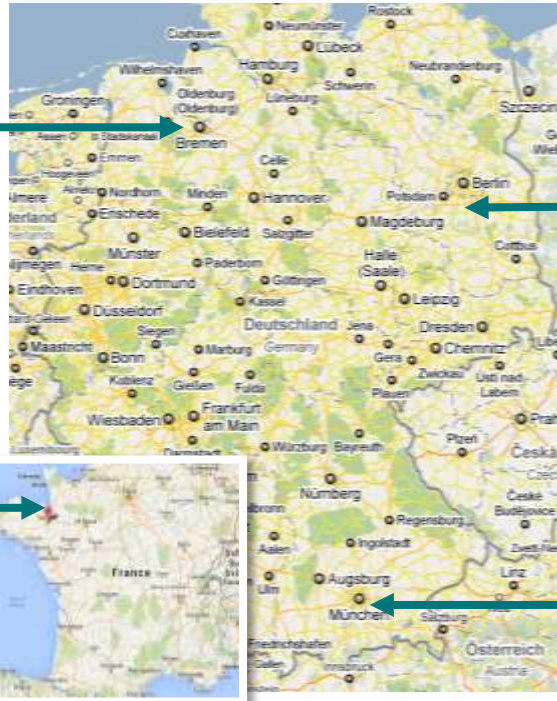
Our locations



Bremen



Rennes



Zossen



Penzing

Energiequelle – more than just wind power

Going one step further

- First 380 kV grid connection as an wind project developer in 2003 → substation Putlitz (Brandenburg)
- Grid connection as standard business
- Creator of a company for the construction of PV mover systems
- Renewable energy supply for a vehicle test area (DEKRA / Lausitz)
- Project developer for the renewable energy self-sufficient village Feldheim (Fläming/Brandenburg)
- Simulation of energy self-sufficient systems for municipalities and industry based on renewables and storage options

The energy self-sufficient village Feldheim



History – energy storage in Feldheim

„Realization“ of the energy self-sufficient village Feldheim (2010)

Storage for 100 % physical self-sufficiency (2011)

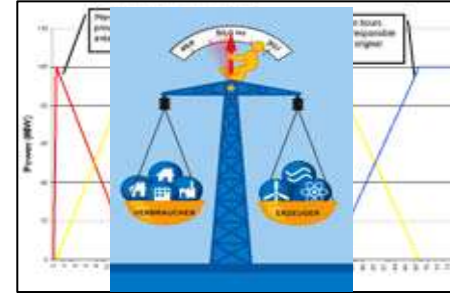
Analysis of different business cases
for storage systems (2012)

Primary Frequency Control– interesting
business case, technical ambitious
(2013)

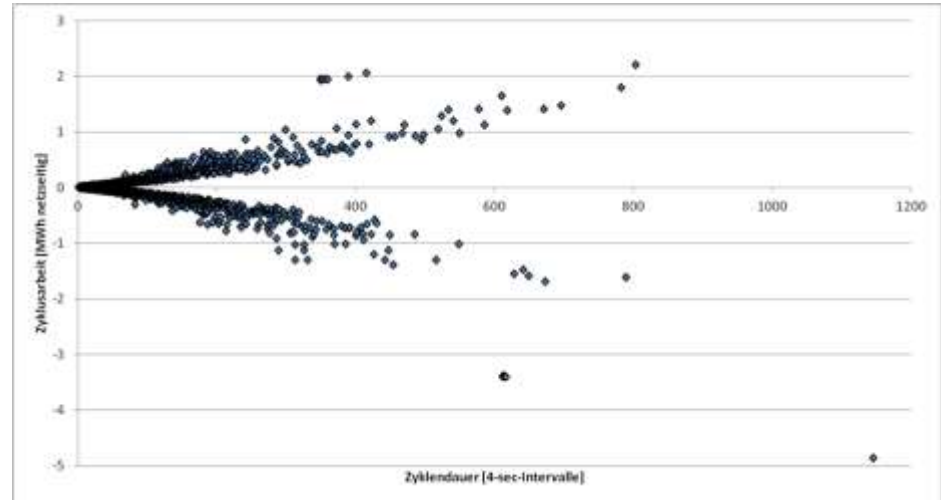
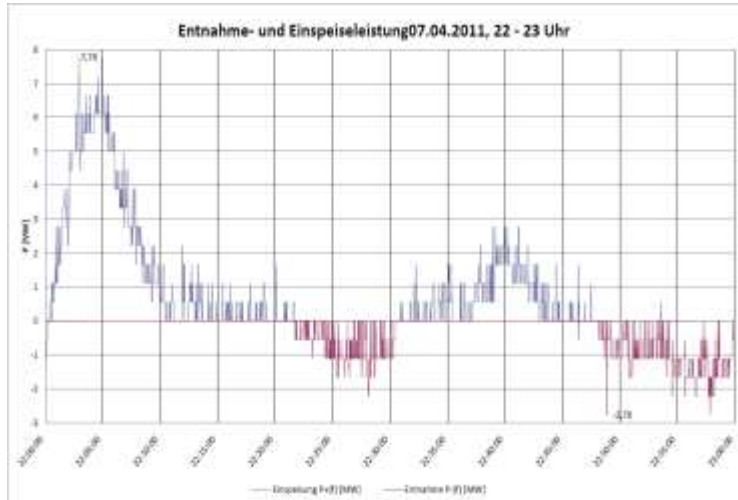


Frequency control market

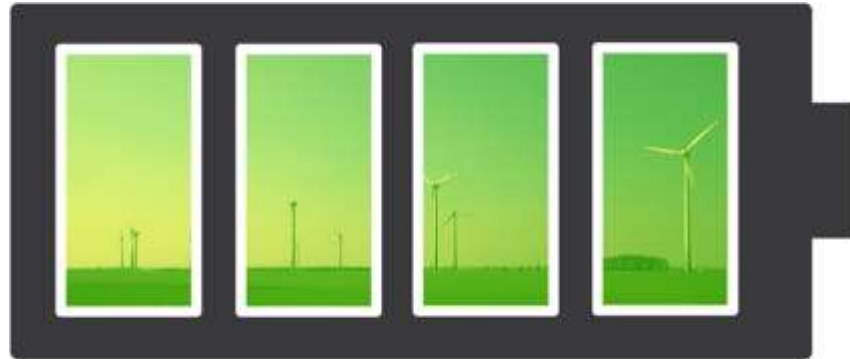
Business:	primary frequency control
Requirements:	power regulation depending on the frequency deviation
Marketing:	primary frequency control pool of Vattenfall Europe
Return:	Revenues from a weekly tender organized by the TSO's (€/MW/week)
Challenge:	prequalification (100% availability)



Dynamical requirements of frequency control – expected performance



Project partner – RRKW Feldheim GmbH & Co. KG

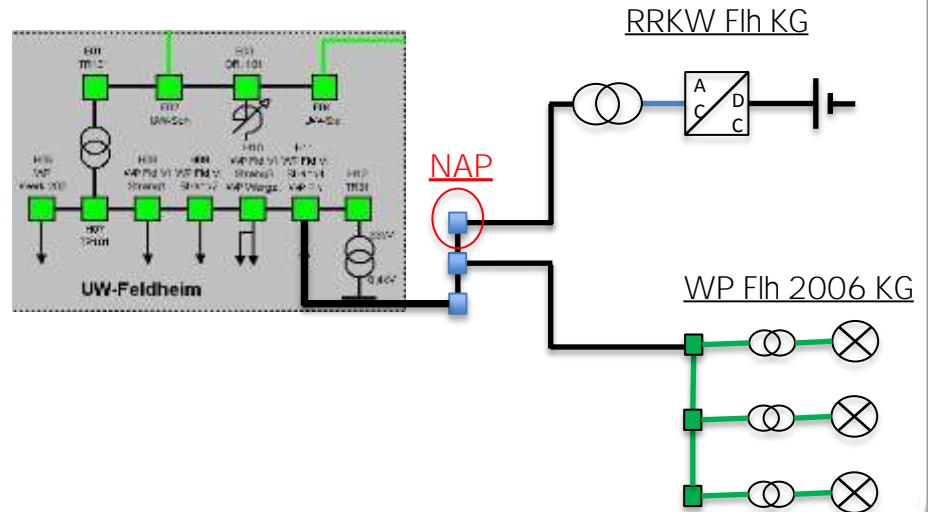
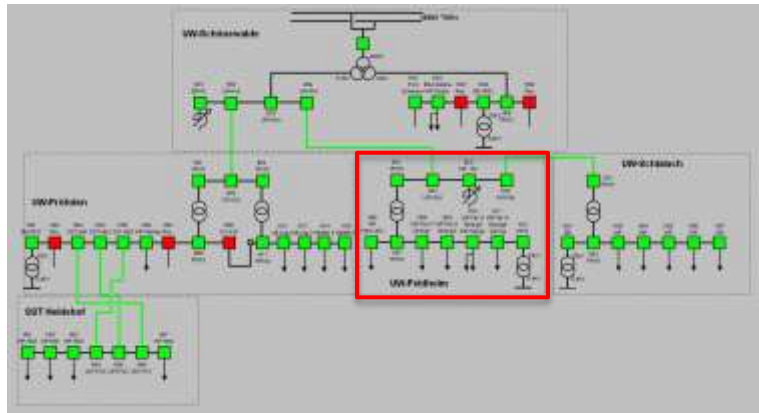


Project Overview RRKW Feldheim

Location:	Treuenbrietzen OT Feldheim
Kind of building:	Solid building
Cell technology:	Lithium ionen battery
Inverter:	Standard wind inverters from Co. Enercon
Power:	10 MW / 13,8 MVA / 10,7 MWh
Efficiency AC/AC:	> 85%
Invest:	ca. 12,8 Mio €
Funding:	5 Mio. €, REN-Plus funding program by Brandenburg
Planned operation:	10 years
Schedule:	prequalification March 2016



Grid connection to a wind feed-in grid



Uncharted waters for all crafts

Construction
business –
requirements for
room sealing



Transformer –
change of load and
low-losses



Cooling – complexity
of climatic
requirements



Local relevance of RRKW

- Residents of Feldheim
 - „Every 5 years a new building block for the German Energiewende was build up in Feldheim“
 - Mr. Knappe mayor of Treuenbrietzen
- Competition of schools „Physic meets Art“



Economic prospects – without funding

Increasing number of possible business cases

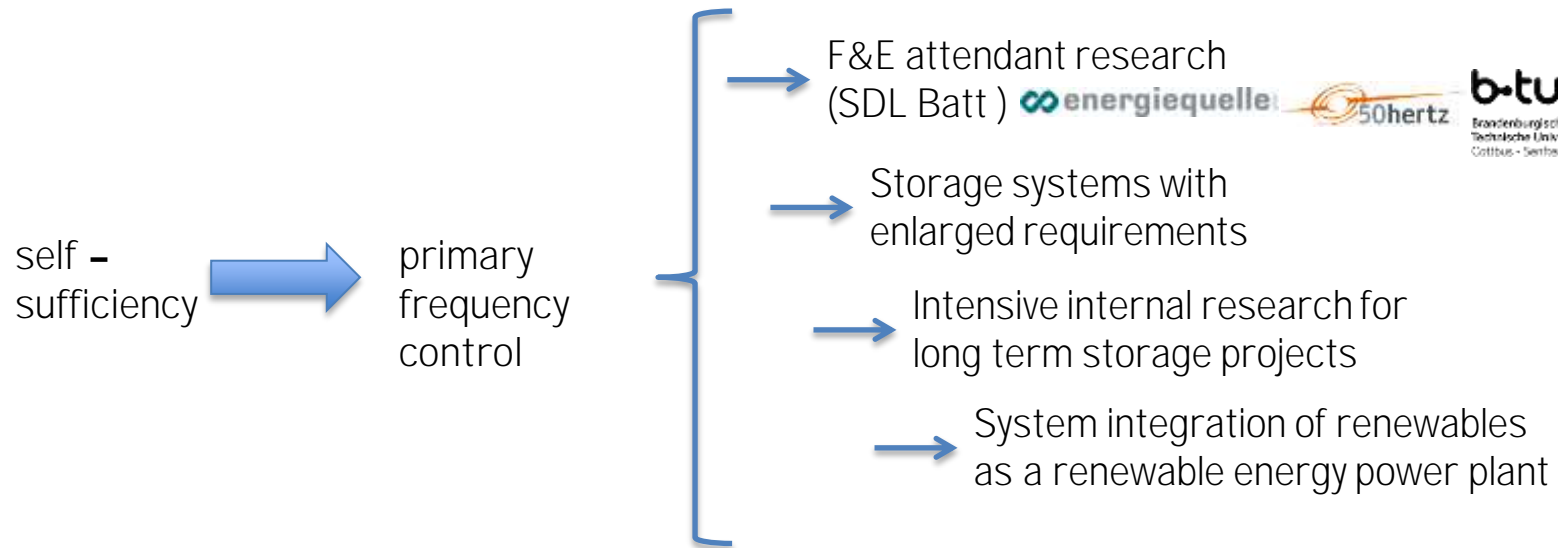


Decreasing Investmentcosts

Decreasing of cell aging

1/60 of the primary frequency control market – covered by RRKW

RRKW Feldheim – First step is done!



Thank you for your attention!



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