

YOUNICOS

Let the fossils rest in peace.



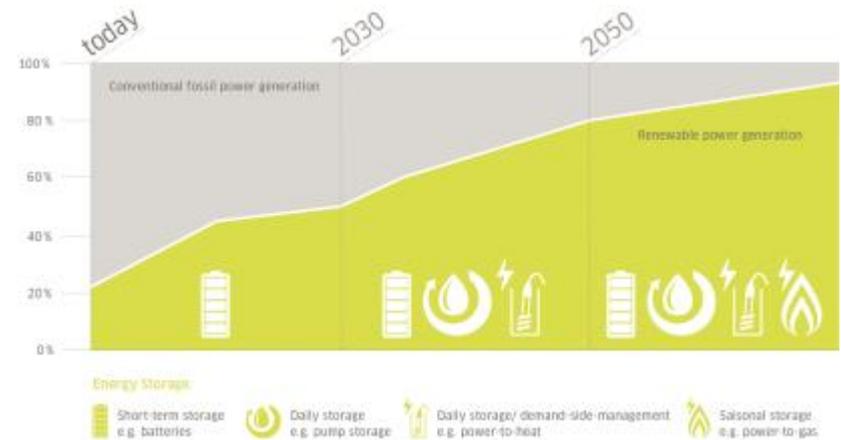
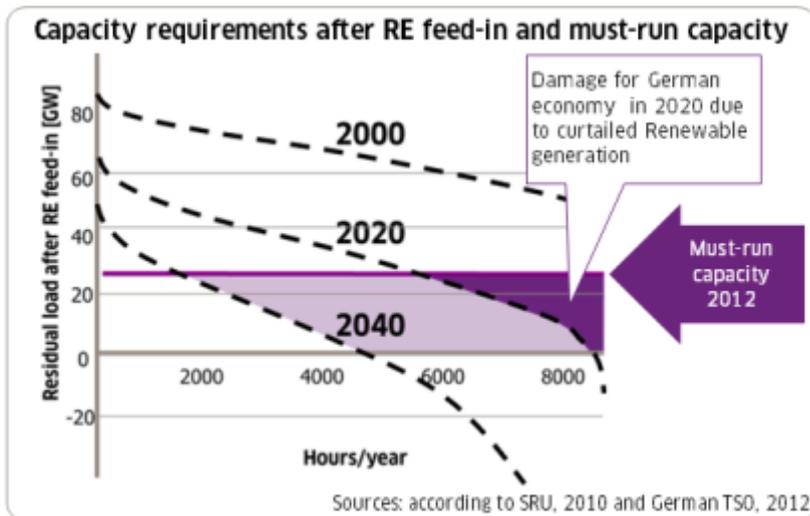
# Batteries for balancing power - a regulatory review

January 22nd, 2016



**Why do we need batteries in the grid?**

# Because they limit must-run costs of conventional generators



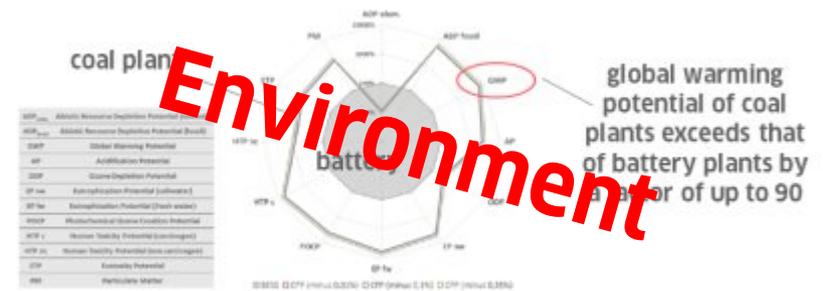
**BNetzA reported for the first half of 2015 costs of €149m for curtailment of renewables and €253m for redispatch measures.**

# And because they do a better job than conventional technology



**Must-Run**

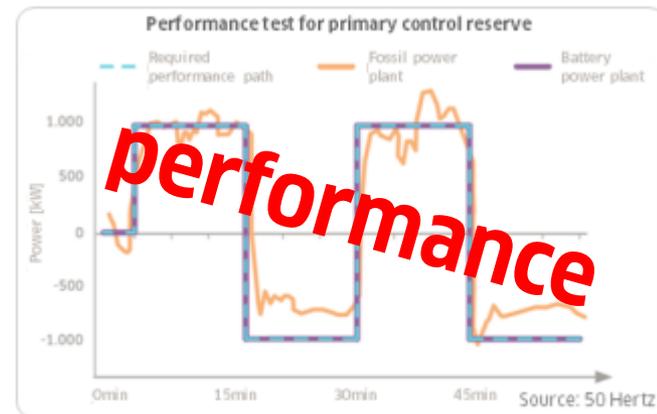
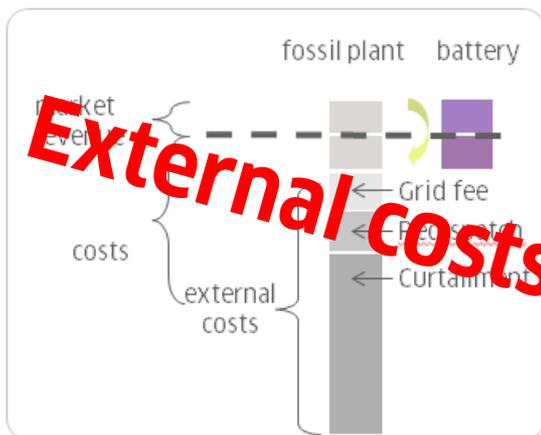
Comparison for the provision of frequency containment reserve



**Environment**

global warming potential of coal plants exceeds that of battery plants by a factor of up to 90

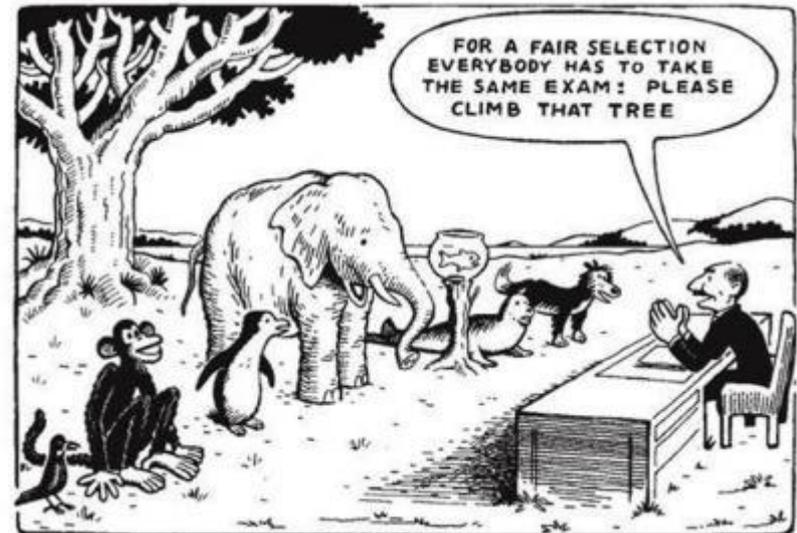
Batteries help to reduce emissions and pollution from the energy sector



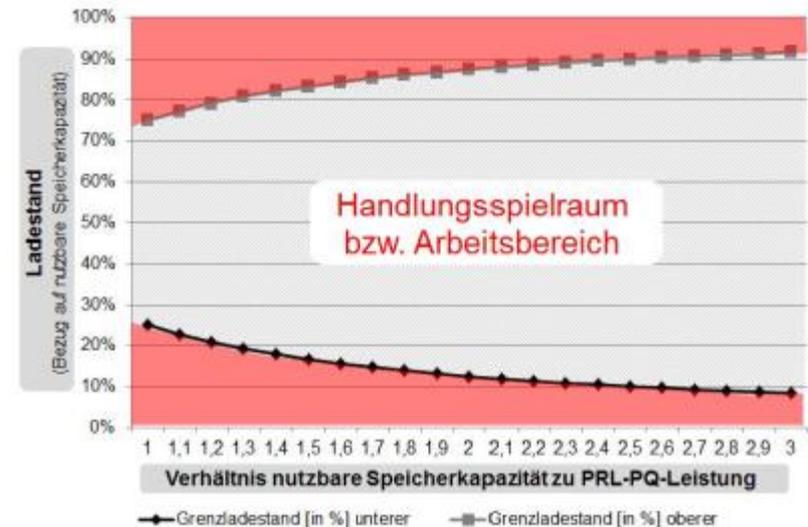
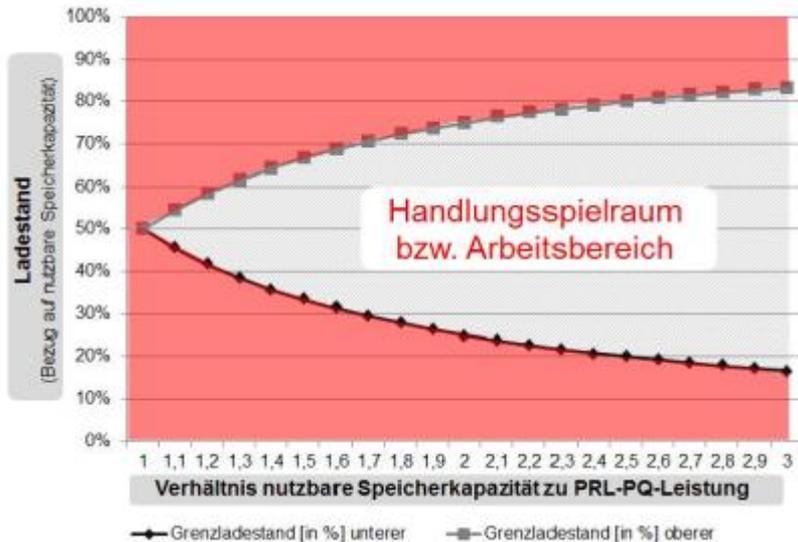


**Will we open the door for battery storage?**

# Capacity requirement for storage: Technological discrimination and the 15min vs. 30 min-Question



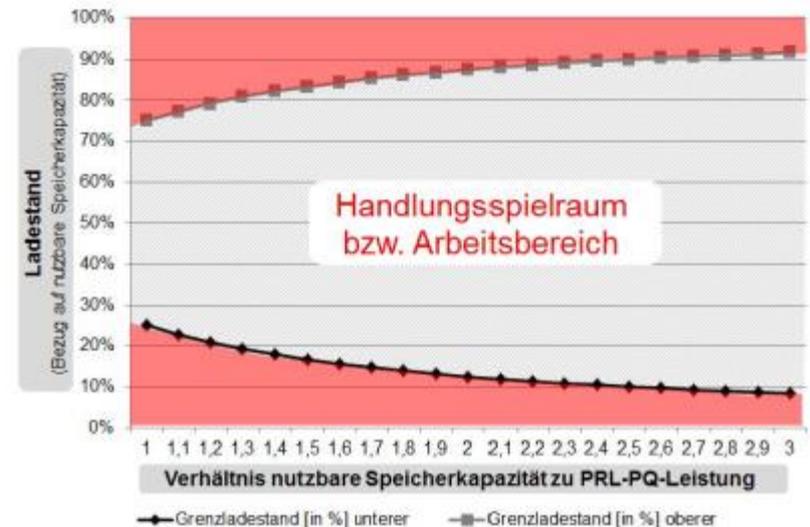
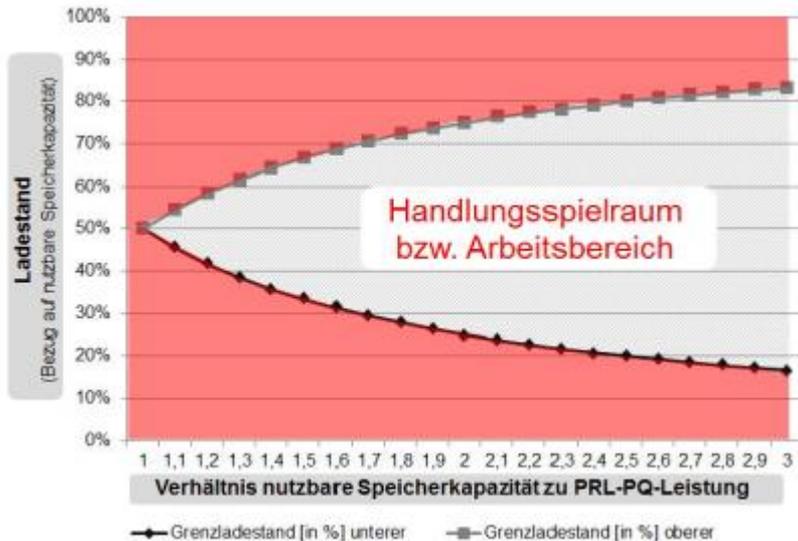
# How much capacity do batteries need to reserve for the worst case?



# How much capacity do batteries need to reserve for the worst case?

## 30min requirement

## 15 min requirement



# Current regulators issues

## Guideline Electricity Transmission System Operation

- Defining 15min capacity requirement for storage to participate in the market for frequency containment reserve
- Final decision in Feb/March

## European Market Design Initiative

- Definition of storage in unbundled energy markets
- Market Design for increasing share of renewable → reform of ancillary services
- Ownership role of storage for TSOs/DSOs?

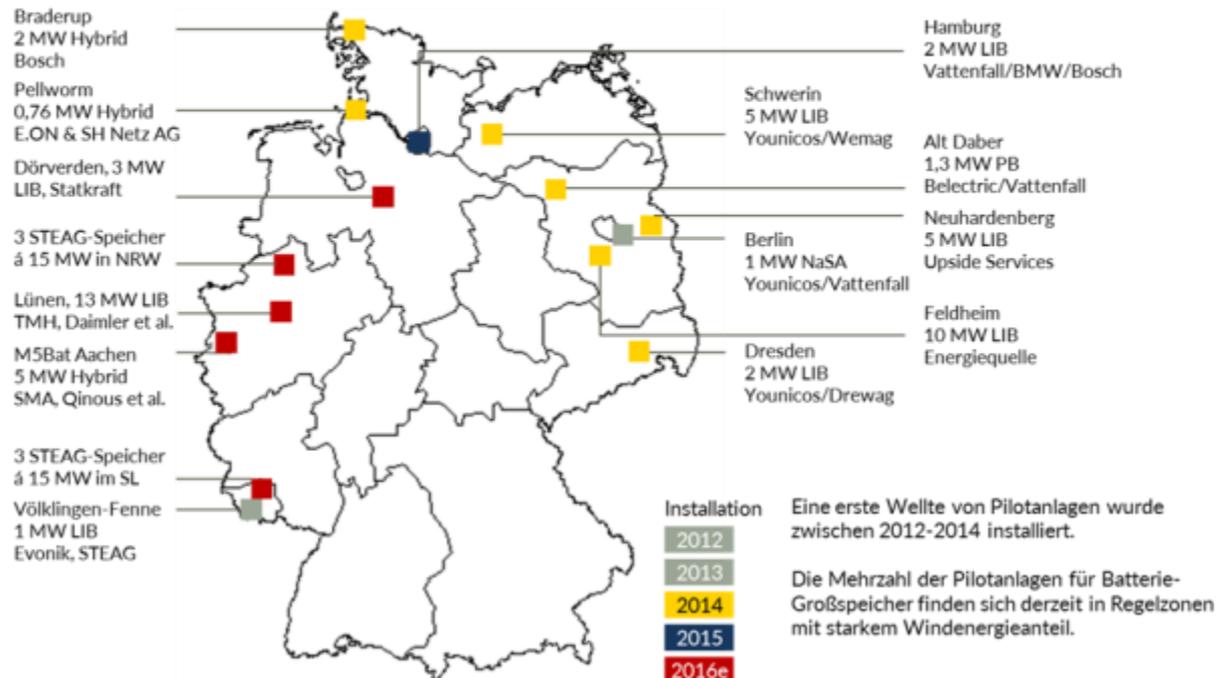
## New markets opening up quickly

- Enhanced Frequency Response Tender in the UK
- DS3-service package in Ireland

# Batteries are not a technology for the future, but for today

10 Batterie-Großspeicher im Megawattbereich sind installiert, rund 10 sind im Bau

## Übersicht Batterie-Großspeicher >1 MW in Deutschland



Quelle: Büro F - New Energy Markets, auf Basis von Unternehmensmeldungen, GTAI, DoE Global Energy Storage Database

# Thank you for your attention!

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