

# Enhancing the Power of Grid Storage: Sodium Chloride Solid State Battery produced in Saxony

Carsten Baumeister<sup>1</sup>

<sup>1</sup> Altech Group, Südstraße 3, 02979 Spreetal, Germany  
carstenb@altechgroup.com

## Summary:

Altech Batteries (Altech/the Company), a leader in innovative energy solutions, provides an update on the fabrication of its groundbreaking AB 1 MWh CERENERGY® battery. Designed with the future in mind, these state-of-the-art Batteries will represent a breakthrough in battery technology. The Grid-Pack CERENERGY® represents Altech commitment to sustainable energy. By utilizing common table salt technology and innovative design, without the requirement for lithium, copper, cobalt, graphite or manganese, it promises to deliver cleaner, more efficient power solutions, thereby reducing carbon footprints and fostering a greener future.

**Keywords:** sodium battery, grid stability, low storage cost, long live battery,

## Background, Motivation and Objective

Batteries are one important tool to reduce CO<sub>2</sub> emissions and fight climate change. The structural change from fossil into renewable energy will be based on available energy storage. Specifically relevant for peak shaving in Grid systems, storage of produced overcapacity and energy distribution in time.

27 GWh in 2021 are produced and not used, because generated at wrong time, when energy distribution lines are already full and not able to transport, in equivalent 2.3 Bil. € /a. In 2022 already increased into 4.3 Bi. € and still growing in 2024. (1)

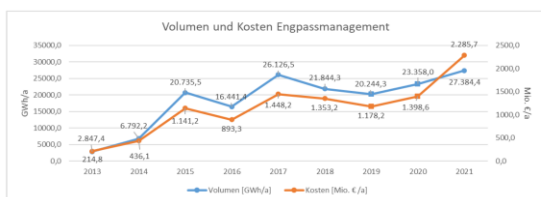
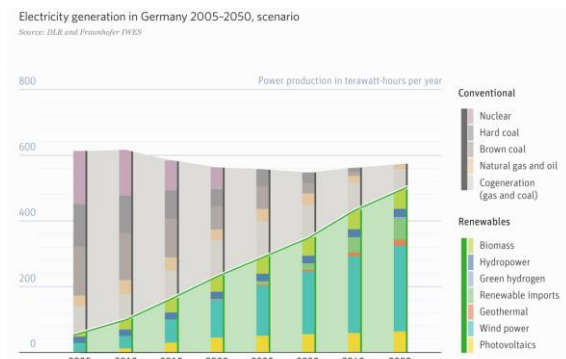


Abbildung 2: Entwicklung der Gesamtkosten des Engpassmanagements, eigene Darstellung (Quelle: BNetzA)

1 energy production not used in 2021

Based on a consumption of appr. 600TWh in Germany political wise it is planned to come from 165TWh in 2021 to 560 TWh in 2050. This required a resilient storage system. (2)



2 German renewable development plan

Sodium-nickel batteries are a reliable and cost-efficient alternative for stationary storage solution. They are at the lowest storage cost because they have.

- no maintenance cost
- no movable parts
- no climatization or cooling
- no Graphite, Lithium, Cobalt, Mangan

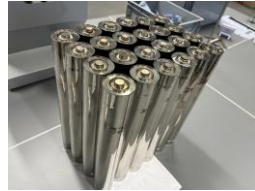
All materials are in Europe available. So, the production is independent from international logistics chains.

## Results of the Method

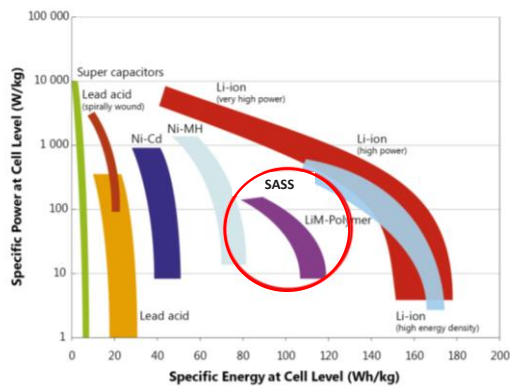
The battery is designed for a temperature range of 280 °C. heating up at charging and cooling down at discharging.

In difference to Li-Ion batteries 3 cycle a day by 80% are possible.

Test at Fraunhofer IKTS show a resilient battery structure and the expected live time will be > 15 years.

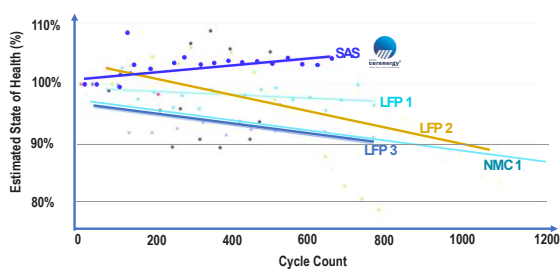


The energy density is around 100 to 120 Wh/kg. (3). The batterie is 15 -20 % heavier than Li-Ion. For it the using in stationary local Grid-System, energy parks are the planned use case.



3 energy density, Source Fraunhofer IKTS

Tests at IKTS shown a rising performance during using comparable to other type of Batteries. (4)

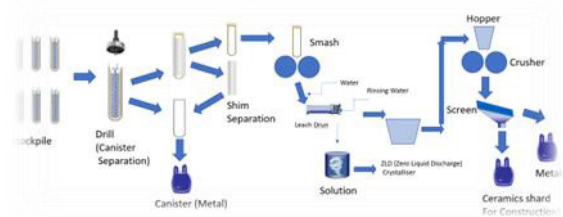


4 long live performance.

Depending on its physical structure (salt, ceramic, metal, nickel) the battery cant burn and can be used in nature reserves, water protection areas and inside buildings.

The GridPack is designed to stack 3 Container on top.

A full recycling concept are developed and a reuse of nickel are implemented. (5)



5 Altech recycling concept



6 Altech ABS 60 kWh Battery Pack.

Altech Batteries GmbH is a Joint Venture between Fraunhofer IKTS and Altech Energy Holdings GmbH.

## References

Fraunhofer IKTS, Altech Batteries GmbH