Zinc Zwischenschritt Electrolyzer (ZZE)

A new Approach for Efficient Energy Storage and Green Hydrogen Production

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A little bit of everything

Charging: Power to Zinc	Discharging: Zinc to hydrogen
Storage of electrical energy	Refeed of electrical energy
Zinc deposition	Zinc dissolution
Release of O_2	Release of H_2

Figure 1: Showcasing the potential of the ZZE.

Image generated with Leonardo.ai (Lucid Origin), [2026].

ZZE - The Ultimate Grid Wingman

Past	Present

Figure 2: Total electricity demand in the past and present.

Bridging the Canyon with ZZE

- up to 11 % of charging can be fed back into the grid
- highly efficient and cost-effective
- separator-free / PFAS-free
- no precious metals
- safe
- capacity of > 250 mAh cm^{-2}
- theoretically unlimited hydrogen pressure
- up to 19 kg H_2 / day and MWh
- total efficiency > 70 %
- flexible charging in 4 to 5 hours

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Join us in shaping the future of hydrogen technology!

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