



Windenergietage 2023



www.hypnetic.de

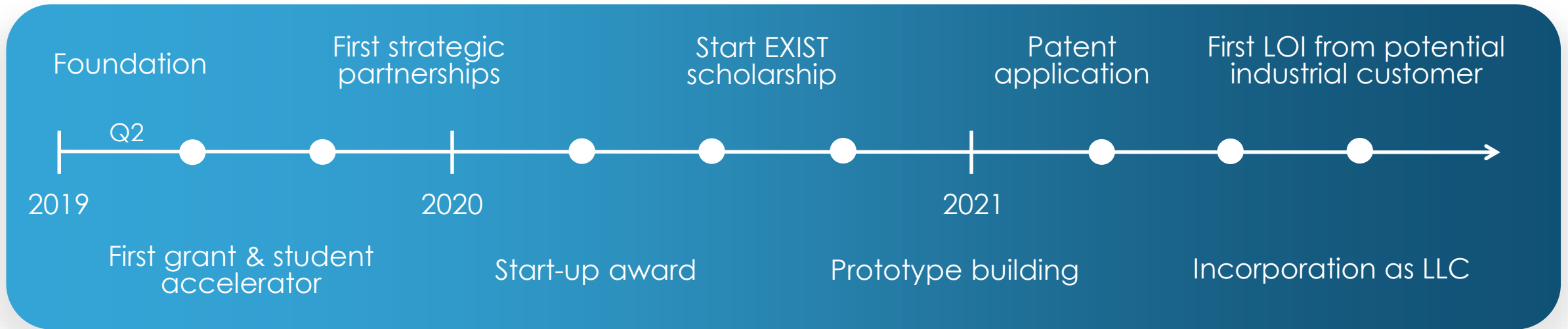


Hypnetic GmbH



From Idea Stage

Successful development financing with grants & awards.

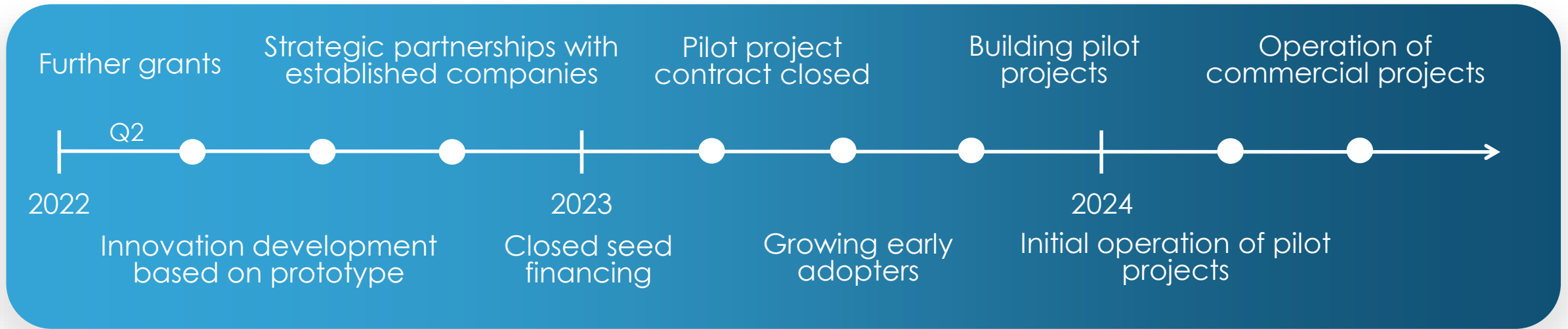




To Business Development



Seed Financing, strategic partners & early adopters for market entry.



SMINT@HANNOVER





Team

United market, start-up & industrial experience.



Alexander Börgel

Entrepreneur & energy professional

Executive management & business development



Niko Dalke

Mechatronic engineer & metal intusiast

Product development & supply management



Eugen Zukin

Simulation expert & data guru

Product development & data management

Partnership with an established energy consultancy for industrial companies.



Lars Berensen

> 26 years international leadership experience

Business development



Jörg Blaurock

> 30 years sales & market experience

Sales strategy



Pavel Kusch

> 12 years market experience, energy auditor

Benchmarking



Introducing Hypnetic's Technology

Unique advanced adiabatic high compression air energy storage.



- ✓ Highest compressed air storage efficiency & energy density
- ✓ Advantaged for decentralized use
- ✓ Quick installation, minimal maintenance



Long service life

25 years, min. 100,000 full storage cycles without degradation



Modularly scalable

Independence of power & capacity, easily upscalable



Sustainable materials

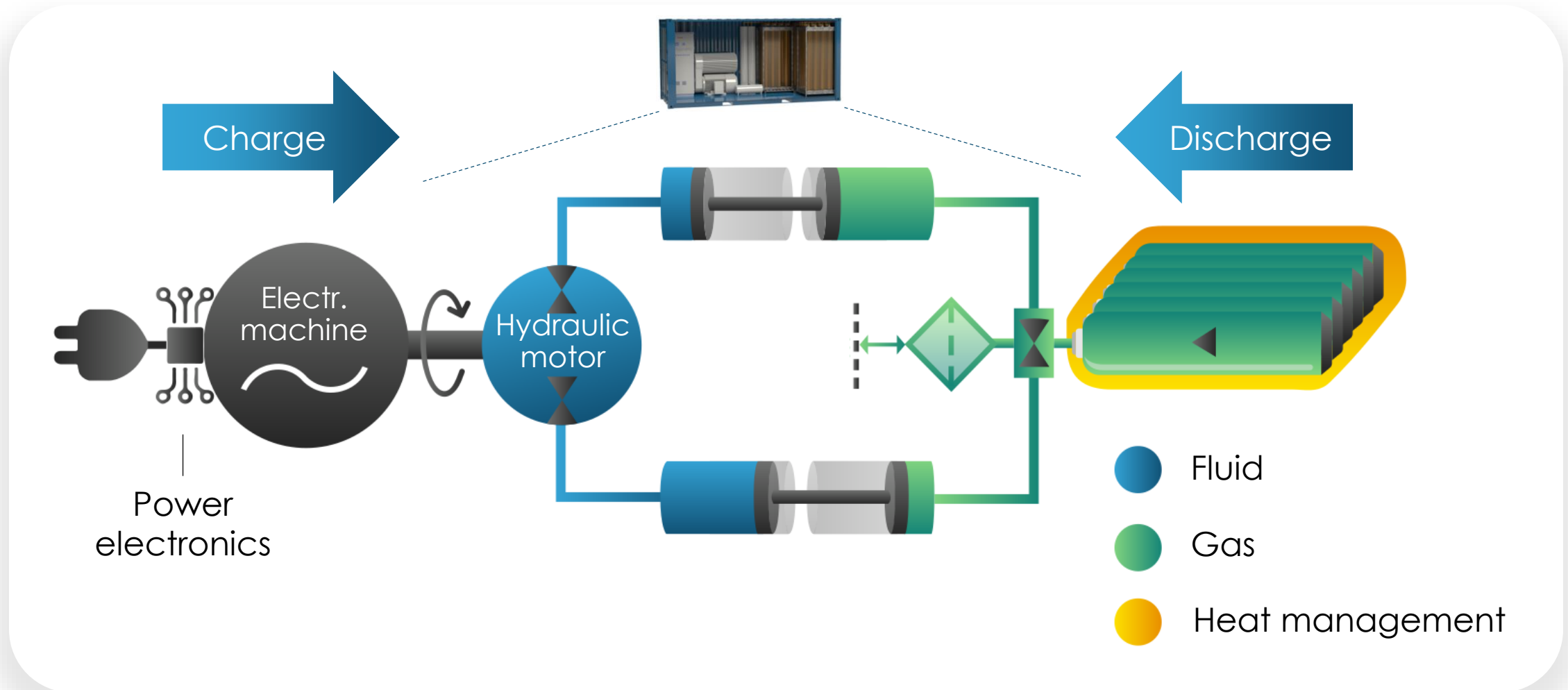
No critical resources & rare earths; fully recyclable



How It Works



Bidirectional power conversion with hydraulic process & heat management.





Key Innovations

Improving CAES technology.



Hypnetic's **Hydraulic Process**

- ✓ Unique combination of established components in the hydraulic industry
- ✓ Efficient and bidirectional power conversion
- ✓ Low cost, no use of valves



For maximum efficiency, service life & cost reduction



Hypnetic's **Heat Management**

- ✓ Based on spray system and phase change material
- ✓ Fast installation & minimal maintenance
- ✓ Replaces additional cooling circuits and fossil heating processes



For maximum efficiency, cost reduction & energy density



Technology Data

Economical all-rounder with revolutionary cycle stability.



Storage System

Storage technology	Hydropneumatic
Charging & discharging power unit	200 kW
Electrical storage capacity per unit	100 kWh
Area of minimal discharge time	15-240 minutes

Performance¹

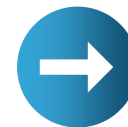
Round-trip efficiency	72 %
Self-discharge rate	< 0.5 % per day
Calendar life	25 years
Min. number of storage cycles	> 100,000
Response time	< 1.3 s
Capacity degradation	< 0.1 % per year

Other Metrics²

Energy density of capacity unit	7 kWh per m ³
Capacitive area utilisation	42 kWh per m ²
Power density of power unit	45 kW per m ³
Pressure equipment directive	2014/68/EU 2014/29/EU
Safety requirements	AD 2000

¹ MVP data, based on prototype & simulation

² Current estimates



Pricing depends on Power- & Capacity-Dimensioning



Main Target Groups & Use Cases

Consuming locally generated green electricity & heat.



Industry prosumer: 2 projects in the pipeline!

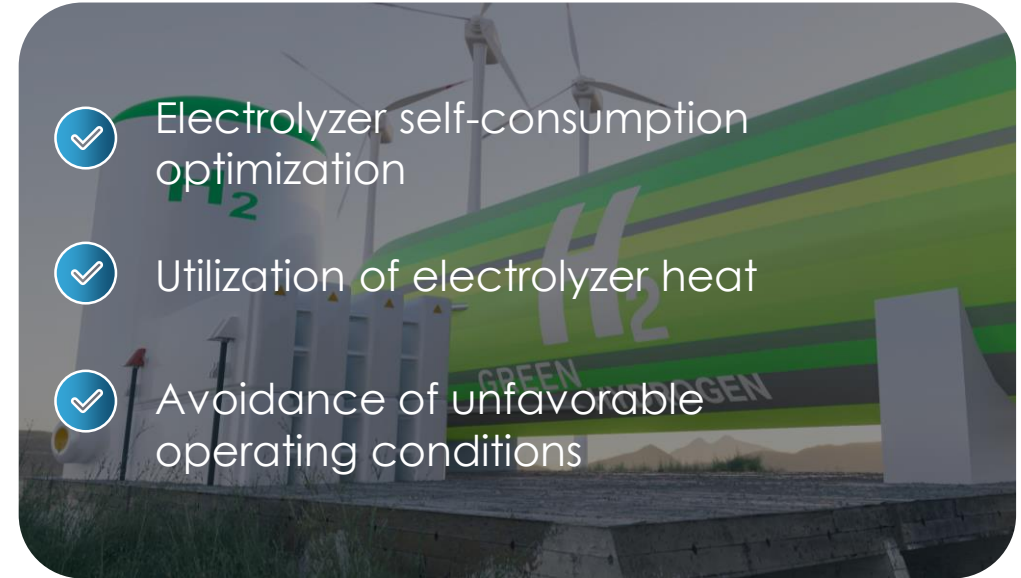


- ✓ Self-consumption optimization
- ✓ Peak shaving
- ✓ Swarm use
- ✓ Island capability

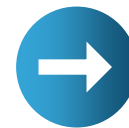


Reduction of energy costs & CO₂ emissions by gaining grid independence

Windfarm & electrolyzer operator



- ✓ Electrolyzer self-consumption optimization
- ✓ Utilization of electrolyzer heat
- ✓ Avoidance of unfavorable operating conditions



Reduction of electrolyzer operating costs by increasing overall efficiency & service life



Get in touch.



www.hypnetic.de



Hypnetic GmbH



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