

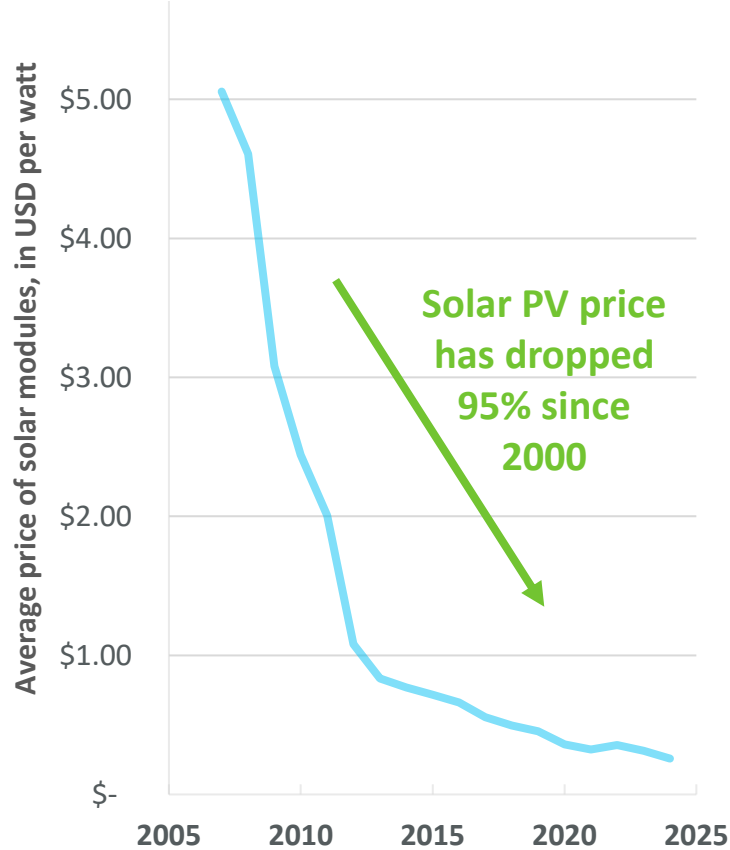
AKROS 

Energy in Salt – Efficient & Safe

THE PROBLEM

THE RENEWABLE ENERGY REVOLUTION HAS A BOTTLENECK

Solar PV module price¹



Mismatch between renewable supply and demand



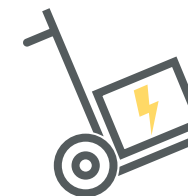
Timing



Location



Long-duration energy storage is too costly



No cost-competitive carrier for renewable energy transport

THE SOLUTION

SALT AS ENERGY CARRIER

Potassium Bicarbonate

Unloaded Salt

- Baking powder
- Fire extinguishers



Cheap and Available

*Reversible
Loading/Unloading*



Potassium Formate

Loaded Salt

- De-icing Agent
- Drilling fluid



Easy Handling

Super Safe

Not toxic, flammable or explosive

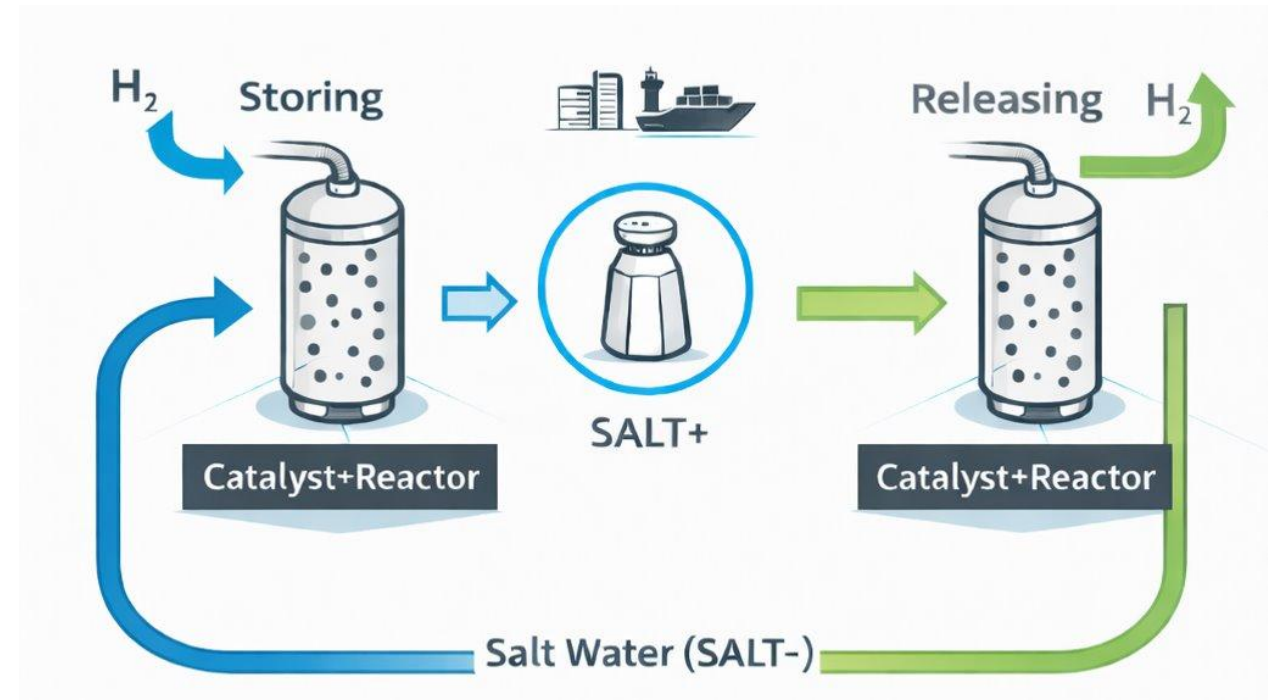
HOW IT WORKS

AKROS STORAGE TECHNOLOGY

- H₂-gas is absorbed in and released from **saltwater solution** using AKROS's proprietary **Catalyst+Reactor System**
- Loaded Salt (SALT+) is suitable for **storage and transport** in both **liquid form** (saltwater) and **crystalline form**
- Chemical reaction:



Innovation = Catalyst
that unlocks the reaction



77 % Storage Efficiency
2x higher than Ammonia

AKROS HYDROGEN STORAGE PLANT

SCALING SAFE, EFFICIENT H₂-STORAGE FOR REAL-WORLD DEPLOYMENT



Lab scale demonstrator

in operation



Pilot Plant
(3 kgH₂/h)

in construction



FOAK plant
(100 kgH₂/h)

in negotiation

Extremely Efficient

Low pressure and temperature

Ultra Scalable

Off-the-shelf components

Cheap





Lowest levelized cost of storage

Fast

Easy permitting, fast construction

H2-CARRIER COMPARED

LOWEST COST AND HIGHEST SAFETY WITH AKROS TECHNOLOGY

	Formate	Liquid H2	Ammonia	LOHC (DBT)
				
Energy consumption for storage ¹ (kWh/kgH ₂)	8.4	12.6	16.9	15.5
Process parameters ¹	60 °C 0 – 30 bar	- 260 °C	400 – 500 °C 100 – 300 bar	300 °C 0 – 50 bar
H ₂ Content ¹ weight %	2.4 %	100 %	17.6 %	6.2 %
kgH ₂ /m ³	45.5	70.8	121.0	54.0
Levelized Cost of Storage ² (\$/kgH ₂)	3,90	9,46	6,09	4,71
Shipping Costs ² (\$/kgH ₂)	0,6 <i>bulk carrier/food tankers</i>	2,1 <i>Cryogenic ships</i>	1,4 <i>Small, expensive ships</i>	1,3 <i>Oil tankers</i>

APPLICATIONS

A UNIVERSAL HYDROGEN CARRIER FOR STORAGE & TRANSPORTATION



ENERGY STORAGE

LONG-DURATION ENERGY STORAGE

- **Industrial** (Steel, Refineries, Chemistry): Back-up supply and renewable balancing
- **Grid Connected:** Renewable Energy Seasonal Storage or National Strategic Reserves
- **Power-to-X:** H₂ and CO₂ buffering in the production of sustainable fuels

Cheapest on-site H₂-Storage

Most cost-effective scaling

Combined feedstock buffer



ENERGY TRANSPORTATION

USE EXISTING INFRASTRUCTURE

- **Ships** (bulk carrier / food tankers)
- **Rail** (domestic transport)
- **Pipeline** (for SALT water)

Low-cost ships/railcars/pipelines

Cheap terminals

Refineries ExxonMobil bp Chevron Shell	Steel NIPPON STEEL TATA ArcelorMittal	Chemicals BASF LG Chem سابك sabic
National Energy Champions TEPCO RWE ENGIE BR PETROBRAS KEPCO NEXTera ENERGY		
Producers and Technology Provider HIF INFINIUM T.E.N. TECHNIP ENERGIES norsk e-fuel TOPSOE Honeywell UOP		
Energy Exporters أرامكو السعودية saudi aramco ExxonMobil Shell BR PETROBRAS ADNOC	Maritime Transport Pure Players International Seaways, Inc. COSCO SHIPPING EVERGREEN	Tank Terminal Operators Vopak KINDER MORGAN Stolt-Nielsen Oiltanking

„(SALT)WATER WILL BE THE
COAL OF THE FUTURE.“ Jules Verne, 1870
adapted by AKROS

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