How the Salgenx Saltwater Battery Will Revolutionize Grid Scale Energy Storage

Salgenx

[TEL] +1 608-238-6001 (Chicago

[Email] greg@salgenx.com

https://salgenx.com/sodium-flow-battery-by-salgenx.html

Salgenx saltwater batteries use abundant materials and a multi modal architecture to deliver safe, low cost, long duration grid storage. Learn how containerized modules, thermal integration, and process co-products can reshape data centers, utilities, and industrial sites.

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Saltwater Battery

A new class of saltwater flow batteries is emerging that stores electricity and thermal energy without lithium or flammable electrolytes. Salgenx aims to make grid scale storage safer, cheaper, and more versatile.

The Salgenx Sodium Flow Battery using Saltwater

Introduction

The large battery market has been defined by lithium ion for a decade, but the next decade will be defined by systems that are safer, more modular, and better matched to multi hour and multi day needs. The Salgenx saltwater battery is built around widely available materials, container based deployment, and a multi modal design that can store electricity while also performing thermal and process tasks. This combination points to a new cost curve and operating model for utilities, microgrids, data centers, and industrial facilities.

What Makes Salgenx Different

1. Non flammable electrolyte
Saltwater based chemistry removes the fire risk associated with organic solvents. This improves siting flexibility and insurance profile for dense urban sites and data centers.

2. Abundant, low cost inputs
Core ingredients are salt, water, and common electrode materials. This reduces raw material volatility and enables regionalized manufacturing close to load.

3. Containerized architecture
Energy is stored in standard shipping containers that hold brine and electrolyte, with modular pumps, electrolyzers, and power blocks. Capacity can scale from a few megawatt hours to many hundreds by adding containers.

4. Multi modal capability
Beyond storing electricity, the system can couple to thermal storage, desalination, and other process streams. Dispatch can be optimized for revenue stacking, not just charge and discharge.

5. Long duration, deep cycling
Flow battery topology decouples power from energy. Adding more tanks increases hours of storage without redesigning the power section, making 6 to 24 hours and beyond practical.

How It Works at a High Level

Energy section
Electrolyzers and cell stacks convert electricity to stored chemical potential in saltwater based electrolytes. During discharge, stacks return power to the grid or facility.
Energy tanks
Separate tanks hold the electrolytes. Energy capacity scales with tank volume and concentration, not with the size of the stacks.
Balance of plant
Pumps, valves, heat exchangers, and controls handle circulation, safety interlocks, and integration with thermal loops or process modules.

Impact on the Large Battery World

1. Safety and siting
Non flammable electrolytes and low pressure operation allow siting near data halls, substations, and behind the meter

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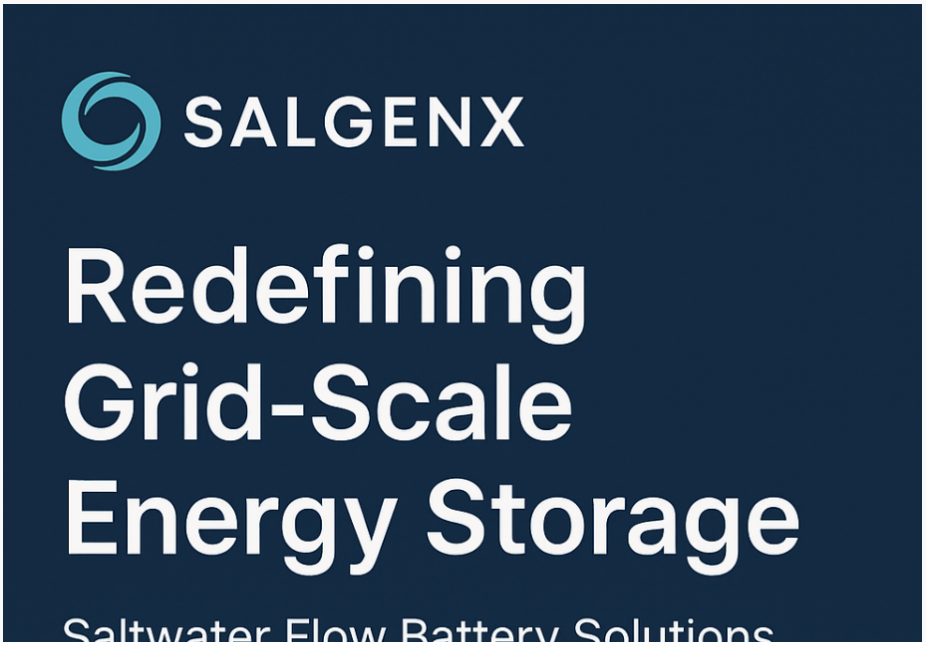
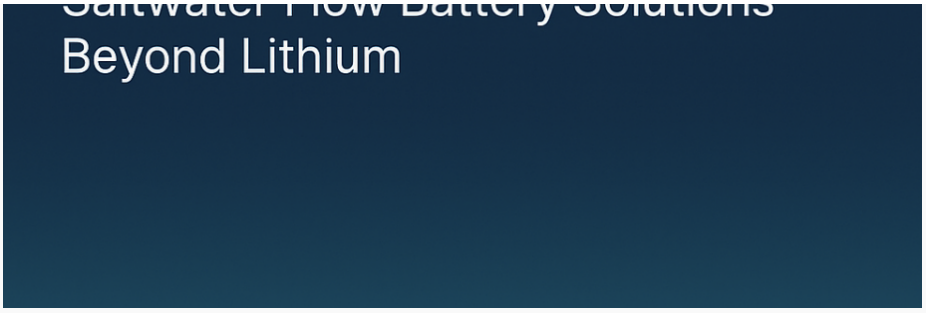
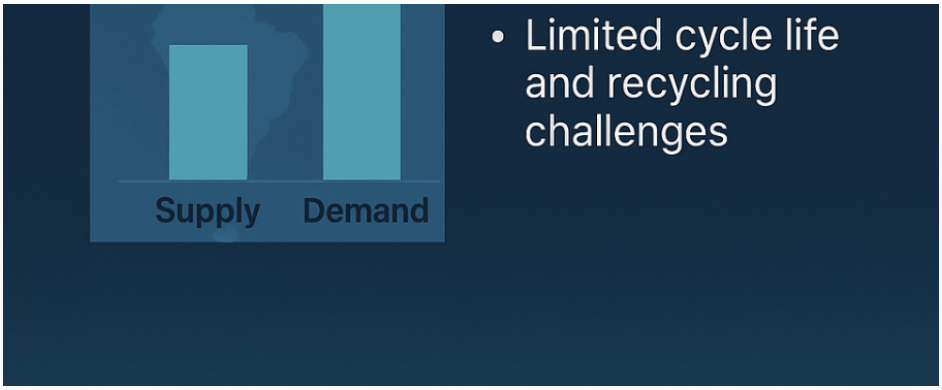
Impact on the Large Battery World

1. Safety and siting
Non flammable electrolytes and low pressure operation allow siting near data halls, substations, and behind the meter loads, shrinking cable runs and interconnect costs.

2. Cost structure
With commodity inputs and containerized assembly, capital costs target a step change versus lithium systems at long durations. Energy capacity is added mostly as tanks and fluids, not additional





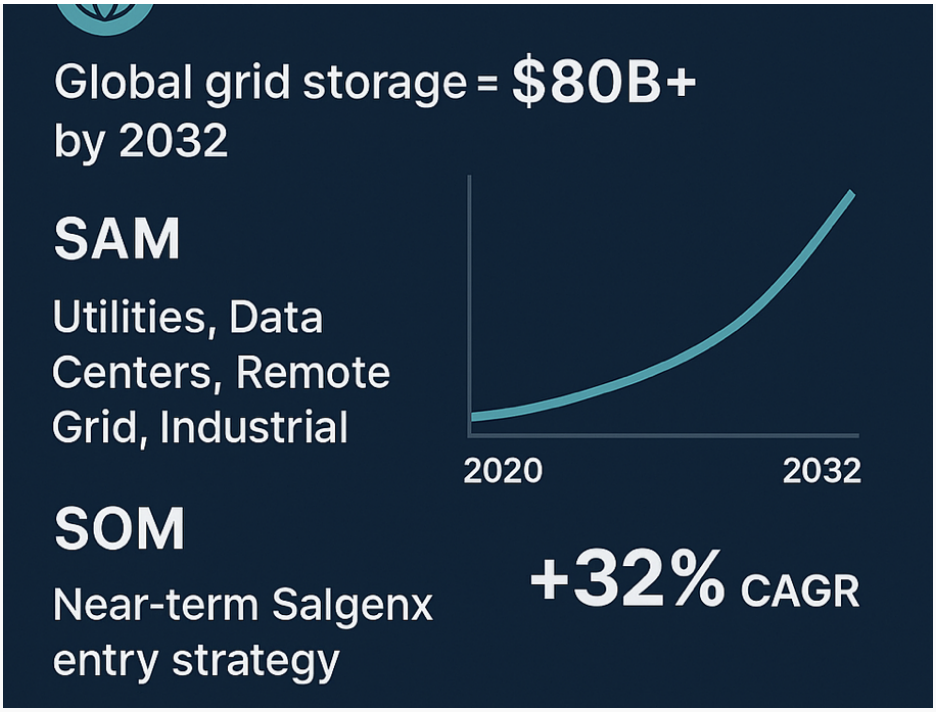


- Fire hazards and environmental concerns
- Limited cycle life and recycling challenges

Technology Advantage

SALGENX	TESLA MEGAPACK

Cost per kWh	$200+
Cycle Life	2000-5,000
Water Desalination Capability	✓



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