

# Innovative Saltwater Flow Battery Technology Harvests Lithium-Rich Brine and Lithium Refinement

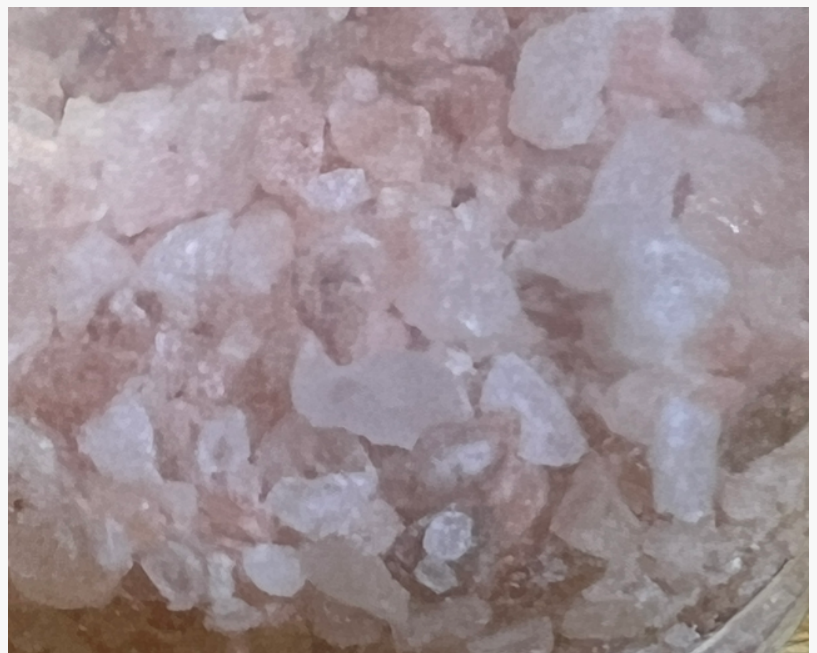
*Salgenx Announces Grid-Scale Battery Charging with Simultaneous Direct Lithium Extraction to Disrupt EV Battery Materials Supply Chain*

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EINPresswire.com/ -- A pioneering advancement in energy storage and direct lithium extraction (DLE) is set to revolutionize the renewable energy and electric vehicle (EV) sectors. A new [saltwater flow battery](#), utilizing lithium-rich brine resources, has been developed, capable of refining lithium as part of its charging process. This breakthrough technology promises substantial energy and time savings compared to traditional methods. When combined with solar PV, a synergy is developed so that energy can be stored during the day (with simultaneous lithium harvesting), then used at night in refining for battery-grade extracted lithium.

Dual Functionality: Energy Storage and Direct Lithium Extraction (DLE)

This state-of-the-art system leverages the natural lithium content in brine, turning a conventional flow battery into a dual-function device. As it



Lithium from saltwater and brine



Spinning Disc Reactor for refining lithium

charges, the battery extracts and refines lithium, a critical component in EV batteries, directly from the brine. This process not only stores energy but also produces valuable battery-grade lithium, offering a sustainable solution to lithium scarcity concerns. This innovative system stands out for its ability to extract lithium during its charging process, a breakthrough that could redefine how we approach lithium production and supply chain for EV batteries.



Salgenx S3000 Salt Water Flow Battery with Simultaneous Lithium Processing

### Significant Energy and Time Savings

Compared to existing lithium extraction methods, this innovative approach yields remarkable energy and time efficiencies. The integration of lithium refinement into the battery's charging cycle eliminates the need for separate, energy-intensive extraction processes, resulting in energy savings exceeding 50 percent. This efficiency also translates into significant time savings, streamlining the supply chain for EV battery production.

### Competitive Advantage Compared to Conventional Lithium Production

The raw material cost of lithium has dropped significantly in the past year. As reported by [Bloomberg](#), lithium is down almost 70 percent while EV sales growth has fallen while battery output capacity has increased at a rate of two to one. This new method of lithium extraction offers a competitive advantage in terms of cost and sustainability, aligning with the increasing global demand for environmentally friendly and efficient EV battery production.

### Exploring the Technology

This innovative flow battery system, adaptable to different brine sources, harvests lithium from brine using a selection of cutting-edge technologies. This extraction is cleverly integrated into the battery's charging cycle, effectively utilizing existing energy and infrastructure. The system employs various techniques tailored (tunable) to the specific brine resource, such as:

- Using readily available resins, similar to those produced by Dupont, for adsorption.
- Electrolyzing lithium chloride.
- Extracting lithium from effluent through precipitation.

### Substantial Energy Savings Leveraging PV Power

This process yields energy savings exceeding 50 percent compared to conventional lithium extraction and refining techniques. When paired with solar photovoltaic (PV) power, the system stores solar energy during the day while simultaneously extracting lithium. This stored energy is then utilized at night for post-processing, refining the lithium extract to battery-grade materials. Alternatively, off-peak grid power can be used at night for energy storage and lithium harvesting, while during the day used for lithium refining.

## Implications for Renewable Energy and EV Industries

The development of this technology marks a major milestone in renewable energy storage and EV battery production materials supply chains. It addresses the growing demand for efficient and sustainable energy storage solutions, aligning with global efforts to reduce carbon emissions and reliance on non-renewable resources.

## About Salgenx and [Infinity Turbine](#) LLC

Salgenx, in strategic collaboration with Infinity Turbine LLC, stands at the cutting edge of transformative solutions, showcasing a commitment to excellence and innovation through grid-scale saltwater battery energy storage, destined to set unparalleled standards in manufacturing and battery technology.

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