features-saltwater-battery-by-salgenx

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Salgenx

Saltwater Battery | Grid-Scale | Modular Shipping Containers

This webpage QR code

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The saltwater battery which is grid-scale by Salgenx is a flow battery that not only stores and discharges electricity, but can simultaneously perform production while charging including desalination, graphene, and thermal storage using your wind turbine, PV solar panel, or grid power. Using artificial intelligence and supercomputers to formulate, assess, verify, and forecast self-assembling and self-healing flow battery electrodes. Store thermal heat in saltwater and use when needed. Commercial scale, home, marine, remote, and grid scale energy storage using modular shipping container design. Grid rate arbitrage between on-peak demand pricing and off-peak pricing. Carbon credits may be available for this battery production and use.

PDF Version of the webpage (first pages)

The Battery that Stores Energy and Processes Simultaneously While Self Healing and Optimizing Itself

The Salgenx saltwater flow battery is unique, in that it can not only store electricity, but perform simultaneous processing functions.
• Store grid-scale power
• Store thermal energy (including cogeneration)
• Desalinate seawater
• Make exfoliated graphene
• Perform selectable revenue processes according to highest revenue on-demand (AI tunable logic may select from charging with desalination, or charging with graphene production, etc.)

The 4-6 hour flow battery charge rate can be discharged at any time and the stored energy can be held almost indefinitely.

Our new cathode materials can do the following:
• Self-healing electrode
• Self-optimizing material
• While charging, the system will automatically enhance itself and build conductivity

New Zinc Ion Vermiculite battery chemistry.

This system is revolutionary, and the only type of battery that can accomplish these tasks automatically while in use.

Multiple cathode materials are available for use with the same type anode.

$1.2 Billion USD in pre-orders ready for first license buyer/manufacturer.

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Salgenx Flow Battery Technology Report

Salt Water Redox Flow Battery Technology Report.
• Technology has been around for 100 years.
• US Government spent $7 million to verify the technology.
• Pacific Northwest Laboratory did experiments to prove the technology.
• Dynamics of grid-scale flow batteries: economics, efficiency, and deployment strategies.
• Report offers valuable recommendations for optimizing financial viability, enhancing energy conversion efficiency, and successful deployment.
• Understanding grid-scale flow batteries.
• Learn how to build a demo cell that you can test and use.
• Costs of materials.
• Includes basic information on NTP and Vermiculite as cathode materials.

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Flow Battery Testing

The development process starts in a AI-model, then moves to the beaker half-cell test for validation, then moves to a full saltwater flow battery testing environment.

We test cathode materials with both saltwater and additives, like saltwater with Zinc-Chloride (to establish best round-trip efficiencies, energy density, cost-to-deploy, and more).

The key goals are energy density, available materials, cost-to-deploy, and simplicity (in that order).

Regardless of our cathode materials, we are are significantly below the industry standard, which is the Tesla MegaPack.

The benefit of our battery system compared to lithium batteries are the significant difference in flammability, cost, and access to battery materials.

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Salt Water Flow Battery Tech less than $100 per kWh

AI: Using artificial intelligence and supercomputers to formulate, assess, verify, and forecast self-assembling and self-healing flow battery electrodes.

Lower cost: and faster order access compared to Tesla Megapack (which may take two years to deliver).

No Membrane: Does not use any membrane (like Lithium, Vanadium or Bromine). Instead, uses the natural immiscibility of liquids to separate electrolytes.

Thermal Storage (TES): Using a CO2 heat pump, you can double down on the payback for this new concept of a battery which thermal energy. Cavgenx also offers options for hydraulic power along with cooling. Coming soon IceGenX: Using CO2 and Dry Ice to store power. For USA applications, there are large tax credits for TES manufacturing and installations. Saltwater is a great thermal storage system.

Desalination: The saltwater battery naturally removes salt and a new method of desalination. We offer various cathode materials, some of which do not have the desalination option (including Zeolite Hybrid, Zinc, and Potassium).

Graphene: Using graphite, a simultaneous process of making graphene. We also have ways to make graphene using the sand carrier method and readily available carbon materials (like sugar).

Ultracapacitors: Fast power delivery using ultracapacitors as a bridge.

Waste Heat To Energy 3 MW Power Pack: Waste heat to power using a Infinity Turbine 3 MW ORC turbine generator system power pack. Use solar thermal, industrial waste heat, geothermal, and temperature gradients to heat a working fluid (organic Rankine cycle) to make power. Then store in a Salgenx battery. Or store in dry ice and use for cooling or desalination.

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Unlocking Sustainable Energy by Enhancing Bamboo Biochar for High-Performance Cathode Materials Using Electrolysis

Discover how Salgenx electrolysis enhances bamboo biochar for use as sustainable cathode materials in batteries, offering a greener, cost-effective solution for high-performance energy storage.

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Why Salt Water may be the Future of Batteries

Redox flow batteries, or RFBs, can exploit the abundance of elements like sodium and iron. One U.S. company already has salt water batteries ready to go, with at least two others developing iron flow variations built to effectively run on rust. They promise to last longer and be far cheaper than the competition.

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Salgenx Saltwater Flow Battery: Revolutionizing Energy Storage and Beyond

The Salgenx saltwater flow battery is a cutting-edge technology offering remarkable capabilities that extend far beyond conventional energy storage. Designed for grid-scale applications, particularly for peaker plants, this innovative battery provides efficient and sustainable energy solutions. Here are the key features and capabilities of the Salgenx saltwater flow battery:

Grid-Scale Energy Storage

The Salgenx saltwater flow battery is ideal for grid-scale energy storage, particularly for peaker plants that need to supply additional power during periods of high demand. Its large-scale energy storage capacity ensures a reliable and stable power supply, reducing the strain on the electrical grid and contributing to overall grid stability.

Desalination and Fresh Water Production

One of the unique aspects of the Salgenx battery is its charging process, which doubles as a desalination process. This capability allows for the production of fresh water, making it a valuable resource in regions facing water scarcity. By integrating energy storage with desalination, Salgenx offers a dual benefit that addresses both energy and water needs.

Graphene Production

During the electrolysis reaction on the cathode side, the charging process of the Salgenx battery can simultaneously produce graphene. This high-value material has numerous applications in various industries due to its exceptional strength and electrical conductivity. The ability to produce graphene as a byproduct adds significant value to the overall process.

Enhanced Thermal Storage

The saltwater tank side of the Salgenx battery can be enhanced with thermal storage capabilities using the Cavgenx heat pump turbine with a common shaft drive. This integration improves the efficiency of the thermal storage process, allowing for better management of excess heat and energy within the system.

Hybrid Sand Battery for Solar and Wind Power

Excess solar photovoltaic (PV) or wind power can be stored in the Salgenx battery or utilized as bypass thermal storage in a hybrid sand battery. This hybrid system also facilitates the production of graphene-coated sand, which can be used as a high-strength, lightweight concrete aggregate. This innovative approach not only stores renewable energy but also contributes to sustainable construction practices.

Closed-Loop and Material Extraction Processes

Typically, the Salgenx saltwater flow battery operates as a closed-loop system. However, it can also be adapted to process brine or other salinated reservoirs for recycling or material extraction, such as lithium. This flexibility allows for the recovery of valuable materials, further enhancing the sustainability and economic viability of the technology.

Conclusion

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Turbocharging Flow Battery Innovation: How NVIDIA NIMS and Microservices are Powering the Future of Energy Storage by Infinity Turbine

In the realm of renewable energy, flow batteries have emerged as a promising solution for large-scale energy storage. However, optimizing these systems for efficiency and longevity remains a complex challenge. Enter NVIDIA NIMS (NVIDIA Intelligent Monitoring System) and the power of microservices—a dynamic duo poised to transform the landscape of flow battery testing and optimization.

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Zinc Cathode and 3D Additive Metal Printing

In this approach, the zinc is deposited onto the cathode through electrolysis, which is a key part of the battery's charging process. This deposition process can be precisely controlled to build up layers of zinc, effectively enabling additive manufacturing. By integrating 3D printing capabilities with the energy storage function of the saltwater battery, this method offers a dual-purpose solution that enhances both manufacturing efficiency and sustainability. The use of zinc, a readily available and recyclable material, further contributes to the environmental benefits of this technology.

This is a result of our testing in July 2024.

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Cathode Materials Development

Salgenx has both analytical and digital assets for development of cathode materials. A in-house laser also assists in development in materials evolution.

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About

Salgenx is a division of Infinity Turbine LLC. It is a small technology development company. We don't have investors, so we determine our own path and prioritize product development and your needs.

Our revenue source is selling licenses to customers. Those funds keep development moving forward.

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