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Salgenx

Grid-Scale Saltwater Flow Battery in Shipping Containers by Salgenx



This webpage QR code

Structured Data

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The grid-scale Salgenx saltwater flow battery 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. Store ice at night and use during the day. Store heat and use when needed. Home, marine, remote, and large 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)

4/21/2024

The Battery that Stores Energy and Processes Simultaneously

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)

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

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Salt Water Flow Battery Tech less than \$100 per kWh

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: Using a CO2 heat pump, you can double down on the payback for this new concept of a battery which thermal energy. [Cavgenx](https://cavgenx.com) also offers options for hydraulic power along with cooling. Coming soon IceGenX: Using CO2 and Dry Ice to store power.

Desalination: The saltwater battery naturally removes salt and a new method of [desalination](https://salgenx.com/desalx.html).

Graphene: Using graphite, a simultaneous process of making [graphene](https://infinityturbine.com/graphene.html).

Ultracapacitors: Fast power delivery [using ultracapacitors as a bridge](https://salgenx.com/ultracapacitor.html).

Waste Heat To Energy 3 MW Power Pack: Waste heat to power [using a Infinity Turbine 3 MW ORC turbine generator system power pack](https://www.infinityturbine.com). 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.

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.

4/21/2024

TES or Thermal Batteries may have a USA 30-40 Percent Tax Credit or \$45 per kWh

A Salgenx 3,000 kWh Energy Battery, while used as a TES (Thermal Energy Storage) at 60 C could have a potential up to 24,000 liters of saltwater thermal capacity or 1,635.9 kWh. Now multiply that with the proposed \$45/kWh = \$73,616 tax credit. The Electrical storage tax credit is \$35/kWh x 3,000 kWh = \$105,000.

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.

How it Works

- Flow battery system which requires two large tanks that hold fluid electrolytes. One tank is dedicated to saltwater (just add NaCl to water). The saltwater tank may be used for thermal storage. The other tank is a liquid to store the separated NaCl.
- Fluids are circulated through electrodes, which regulate the input and output of electricity from the battery. The Sodium (Na) is stored in the cathode materials.
- No membrane. Electrolytes automatically separate. No membrane saves huge up-front purchase costs, maintenance, and consumable expenses.
- Flow battery uses liquids (hence flow) so it takes 4-6 hours to charge or discharge. \
- NaCl is split and stored separately, the energy can be stored for weeks or longer, unlike other flow systems.

Salgenx Energy Storage Simultaneous Desalination for Fresh Water Generation

A breakthrough in desalination technology has been announced today with the unveiling of a new system that uses a saltwater flow battery (BESS) cycle to produce clean drinking water from seawater. This innovative solution has been developed to create a sustainable and cost-effective way of storing energy while simultaneously producing fresh water, without the need for a membrane.

Reverse Osmosis Desalination: A Deep Dive into Processing 24,000 Liters of Seawater

The quest for fresh water has led humanity to harness various technologies, among which reverse osmosis (RO) desalination stands out as a beacon of innovation. This article explores the intricacies of using an RO system to desalinate 24,000 liters of seawater within a span of 6 hours, shedding light on the system's size requirements, energy consumption, cost implications, and the resultant brine's salinity.

Revolutionizing Agriculture: The Salgenx Food Production Scale Battery System

The vegetable production module process is designed to optimize the cultivation of various vegetables using advanced vertical fogponics systems within the controlled environment of hi-cube shipping containers. This innovative approach leverages the precision and efficiency of fogponics, a method that uses nutrient-rich fog to hydrate and feed plants, ensuring optimal growth conditions without the use of soil. The integration of solar photovoltaic (PV) power for lighting and fog generation makes the process sustainable and energy-efficient.

Each module, encapsulated in a hi-cube shipping container, is meticulously configured to maximize space utilization and light distribution, ensuring that crops such as tomatoes, leafy greens, peppers, and microgreens thrive. The system's design facilitates year-round production, irrespective of external climate conditions, by maintaining ideal temperature, humidity, and light levels.

The process begins with the selection of crops based on their profitability, energy requirements, and compatibility with the fogponics system. Containers are then outfitted with LED lighting, fogponic irrigation systems, and solar PV panels to create a self-sustaining environment. Crop production is closely monitored and managed, focusing on optimizing yield and ensuring high-quality produce.

Finally, the Salgenx saltwater battery provides PV energy storage to power the LED lighting and pumps, while simultaneously desalinating seawater during charging.

The vegetable production module process represents a fusion of agricultural innovation and environmental stewardship, offering a scalable solution for urban farming and the production of fresh, locally sourced vegetables.
