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salgenx-saltwater-flow-battery-faq

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

greg@salgenx.com [Email]

Salgenx

SaltWater Flow Battery Frequently Asked Questions



This webpage QR code

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Salgenx SaltWater Flow Battery Technology Frequently Asked Questions.

PDF Version of the webpage (first pages)

<https://salgenx.com/salgenx-saltwater-flow-battery-faq.html>

What is a salt water battery ?

The Infinity Turbine (Salgenx) Saltwater battery is a flow battery system, which requires two large tanks that hold fluid electrolytes. One tank is dedicated to salt water (add NaCl to water). The saltwater tank may be used for thermal storage.

Fluids are circulated through electrodes, which regulate the input and output of electricity from the battery.

The battery does not use a membrane, which is common on a redox flow battery.

The absence of the membrane saves huge up front purchase costs, maintenance, and consumable expenses.

Does the salt water battery have other functions ?

The salt water battery may also be used for thermal storage on the salt water side. This can be done with heat exchangers, electric resistance heaters, or the preferred method of using a heat pump with high COP (coefficient of performance) which gives you 3x the efficiency of a typical electrical resistance heater.

Can you integrate Organic Rankine Cycle into the system ?

Yes. ORC can be integrated into the salt water side using the water as a cool water condenser (heats up the salt water), or as a heat pump.

What is the heat pump strategy when using thermal storage ?

Similar to a hybrid hot water heater with integrated heat pump, a similar scenario can be deployed for the salt water side.

Are there battery production tax credits for the USA ?

Yes. \$35 per kW.

Tax credits are available for USA production and sales. Credits may be sold to a unrelated party.

There are also TES (Thermal Energy Storage) credits available.

There are also carbon credits available.

How routine is maintenance ?

Electrolyte levels and electrode oxidation are the only items that routinely need to be checked. Sensors on pumps and charge rates allow active monitoring on a computer or smartphone, with optional notifications by email or text. Electrodes should last around 4-5 years with normal usage.

How are parts or consumables ordered ?

A standard QR code is offered and on each component, which points you to a webpage and order options. Internet connection is required with your device (smart phone or computer).

Is output DC or AC ?

Currently output is DC, with optional AC switchgear.

How much power can the battery store ?

- 3,000 kWh
- 6,000 kWh
- 12,000 kWh
- 18,000 kWh

What is energy arbitrage ?

Energy arbitrage is buying power off peak at a lower cost (typically at night), then selling or utilizing during higher on peak rates (typically during the day).

How do I utilize off peak power purchase and on peak savings ?

Charge at night during off peak hours, then use or sell during daytime on peak hours.

What is the payback on the battery ?

Depending on your utility or current grid per kW rates, it may be 2-5 years. If you add on the thermal capacity (cogeneration), then that may drop significantly. Typically the thermal savings using a heat pump and higher COP (coefficient of performance), may double that of electricity rate savings.

How does the salt water battery compare to a Tesla Megapack ?

The salt water battery is less expensive to acquire and faster to deploy. The Tesla Megapack is much more expensive (with less moving parts) but has a 2-3 year wait time for delivery. There are advantages and disadvantages to both. Please email for more information.

What is the retail price of the 3000 kW battery ?

Please see our products page.

What is the manufacturers tax credit for each 3000 kW battery ?

\$35 per kW manufactured and sold.

Additionally, the AMPTC incentivizes the production of battery components:

Credit for battery cells is \$35 multiplied by the kWh capacity of the battery cell.

Credit for battery modules is \$10 multiplied by battery capacity.

Thus, component manufacturers can receive up to \$45 per battery for modules and cells combined.

Credit for battery critical minerals is equal to 10 percent of the cost of production.

Credits may be adjusted based on components' mass, watt-capacity, sales price, or production cost.

The credits are available for eligible components produced in the US and sold after December 31, 2022 and before January 1, 2030. Starting in 2030, the credits decrease by 25 percent each year and are phased out in 2033 (phaseout does not apply to credits for critical minerals).

Is the battery mobile ?

The battery system is comprised of large liquid storage tanks for the electrolytes. Currently it is not suggested for mobile use due to large weight. This may become available for trains or ships in the near future, but recommended for stationary applications.

Is the 3000 kW battery available for international shipment ?

Yes. System ships without electrolyte, which can be sourced locally.

Can I upgrade the battery system ?

Power is based on the modular electrodes. To upgrade a system, add electrodes and electrolyte tank size. For example, you can double your system size by adding another 20 ft. tank container, or upgrading to a 40 ft. tank trailer (or equivalent).

Does this flow battery require a membrane ?

This flow battery does not require a membrane.

Can it be used as brine conditioning or desalination ?

Using a heat pump for vapor distillation or using battery process (see information as follows). For SWB-D system, sodium ions are solidified on the anode and chloride ions migrate to the cathode compartment to maintain charge neutrality while partial energy used during desalination is stored in the SWB anode. Unlike LIB (Lithium Ion Battery) or SIB (Sodium Ion Battery), SWB (Seawater Battery), and SWB-D (Seawater Battery Desalination) have an open-cathode compartment. In addition, sodium super-conducting separator (NASICON) is used for SWB and SWB-D, whereas a separator is used for LIB or SIB.

