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flow-battery- research-and- development-by- infinity-turbine

Infinity Turbine
LLC

Flow Battery Research and Development



This webpage QR code

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Flow battery utilizing Curcumin and Blackseed electrolyte for home, commercial, and powerplant use.

PDF Version of the webpage (first pages)

<https://infinityturbine.com/flow-battery-research-and-development-by-infinity-turbine.html>

Flow Battery Development

Infinity Turbine is now developing commercial scale flow batteries, based on organic electrolytes, including Curcumin and Blackseed.

The initial development will include standard membranes, and then expand into spinning disc reactor mechanical membranes instead of expensive fabrics currently used.

This page was built on 30 August 2022 and is currently being updated daily.

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Configurations for Modular Flow Battery Licensing Production and Sales

Please see the Salgenx website.

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Tax Credits

Home Based Flow Battery: 10-100 kW

$\$35 \times 10 \text{ kW} = \350

$\$35 \times 100 \text{ kW} = \$3,500$

Commercial Flow Battery: 4 MW

$\$35 \times 4,000 \text{ kW} = \$140,000$

Utility Scale Flow Battery Bank:

$\$35 \times 4,000 \text{ kW} \times 100 = \$14,000,000$

Note: The credit would apply to components produced and sold after December 31, 2022, and would begin to phase out starting in 2030. Access: Electrochemical cell comprised of one or more positive electrodes and one or more negative electrodes, with an energy density of not less than 100 watt-hours per liter (.1 kW/L), and capable of storing at least 20 watt-hours of energy.

Modular and Scalable

Using standard freight containers and liquid storage containers, the framework of the system is modular and easily transportable. Systems ship empty to save on weight, and when they arrive at destination, simply add water.

Technology

Mechanicals: Magnetic gears and couplings.

Automation: Sensors, command, control, logging, and AI.

Electrolyte: Organic components.

Inflation Reduction Act of 2022

The actual text of the bill and data are shown in the links below. As soon as the IRS has any publications or web links, we will provide those as well.

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Flow Battery Advantages vs Cell Battery

Less parts, less expense, less fabrication, less installation, less maintenance.

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What is Brine

What is brine?

In general, brine is any solution with an extremely high concentration of salts, such as sodium chloride, which can occur either naturally (as with seawater, deep-water ocean pools, salt lakes, producer water from oil and gas drilling) or as a byproduct of industry. These byproducts, or brine waste streams, are typically highly concentrated salt solutions that, in some cases, contain more than twice the amount of concentrated salts than natural brine solutions.

Brine waste streams can also be highly concentrated with total dissolved solids (TDS), such as waste streams in many chemical manufacturing processes, and they can be some of the most challenging to treat or discharge because their composition and purification requirements are dynamic and complex.

Some examples of brine waste created as a byproduct of industry include:

- cooling tower and boiler effluent
- reverse osmosis (RO) and ion exchange waste/reject streams
- produced water from extracting oil and natural gas
- chlor-alkali and chemical plant waste
- acid rock and mine drainage
- food preservation and manufacturing waste streams
- desalination waste from potable water creation
- irrigation runoff

Our novel solution is treating this solution considered and expensive headache, into a battery technology system.

Elon Musk and Tesla even think that recovery of lithium from brine is worth patenting. However, they are not the first to do so. ([1962 Lithium from Brine Patent](https://patents.google.com/patent/US3268289A/en))

Battery Technology: With the advent of the new USA tax credits for producing and selling batteries (\$35/kW) we are focussing on a simple [flow battery](https://infinityturbine.com/flow-battery.html) using shipping containers as the modular electrolyte storage units with tax credits up to \$140,000 per system. We are focussing on the [salt battery](https://infinityturbine.com/salt-battery.html). This battery can be used for both [thermal and electrical](https://infinityturbine.com/cogen-battery.html) storage applications. We call it the [Cogeneration Battery](https://infinityturbine.com/cogen-battery.html) or Cogen Battery.

We are also looking into converting salt based water conditioners to [simultaneously produce power](https://infinityturbine.com/water-conditioning-power-production.html).
