



MGX Minerals Announces Expanded Capacity of Next Generation Zinc-Air Fuel Cell Battery

VANCOUVER, BRITISH COLUMBIA / April 16, 2018 / **MGX Minerals Inc.** ("MGX" or the "Company") ([CSE: XMG](#) / [FKT: 1MG](#) / [OTCQB: MGXMF](#)) is pleased to announce that its wholly owned subsidiary **ZincNyx Energy Solutions Inc.** ("ZincNyx") has developed new methods to expand the capacity of its zinc-air fuel cell battery as part of the mass production design phase.

Background

ZincNyx has developed a patented regenerative zinc-air flow battery that efficiently stores energy in the form of zinc particles and contains none of the traditional high cost battery commodities such as lithium, vanadium or cobalt. The technology allows for low-cost mass storage of energy and can be deployed into a wide range of applications.

Unlike conventional batteries, which have a fixed energy/power ratio, ZincNyx's technology uses a fuel tank system that offers flexible energy/power ratios and scalability. The storage capacity is directly tied to the size of the fuel tank and the quantity of recharged zinc fuel, making scalability a major advantage of the flow battery system. In addition, a further major advantage of the zinc-air flow battery is the ability to charge and discharge simultaneously and at different maximum charge or discharge rates, since each of the charge and discharge circuits is separate and independent. Other types of standard and flow batteries are limited to a maximum charge and discharge by the total number of cells as there is no separation of the charge, discharge and storage components.

Basic System

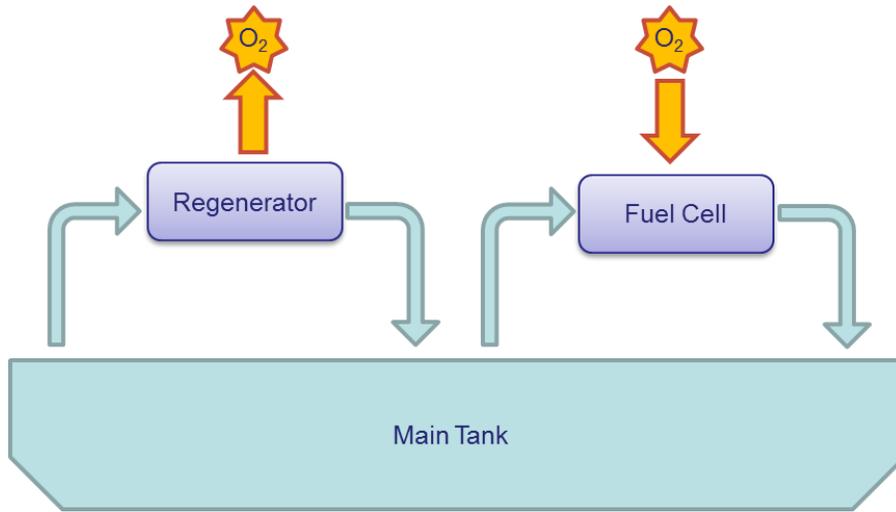
The basic system consists of a Regenerator unit, a Main Tank and a Fuel Cell. When the system is recharging, electrical power is used in the Regenerator unit to produce fine particles of zinc within a bearer electrolyte. As the system continues to be charged, the zinc particles are collected in the Main Tank, surrounded by the common electrolyte and oxygen is released to the air.

When the system is generating power, the zinc particles are delivered from the Main Tank to the Fuel Cell in the bearer electrolyte. The zinc particles are combined with oxygen drawn from the air and electrical power is delivered to the load.

To watch a short video outlining this operation, please visit:

<http://www.zincnyx.com/technology/>

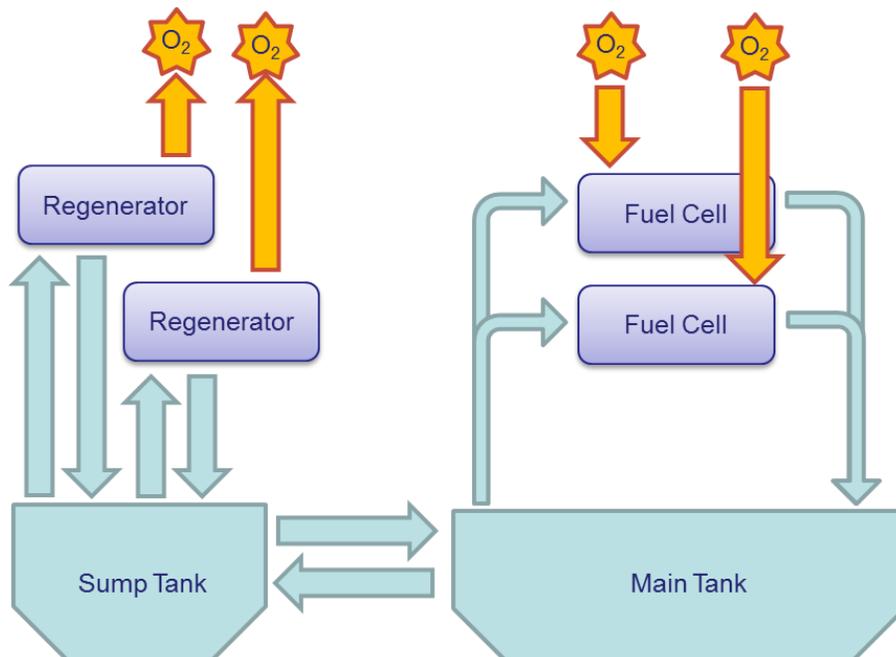
Figure 1. Principle of Operation



Expanded System

Although the Main Tank of the basic system may be made of any suitable size, there are practical limitations to the physical size and electrical capacity of the Regenerator and Fuel Cell units. ZincNyx has overcome this restriction by developing an expanded capacity system wherein multiple Regenerator units and multiple Fuel Cells can be assembled into a single system to deliver a wide variety of configurations and capacities that can be optimised for individual applications.

Figure 2. Expanded System





Whereas the Fuel Cells may be fed from the same electrolyte source, the Regenerator units must be free to exhaust oxygen at atmospheric pressure. In the basic system, this requirement places a restriction on the vertical placement of these units since any difference in height could lead to electrolyte overflow from one unit to another. In the expanded system, ZincNyx has solved this problem by providing a separate Sump Tank and individual electrolyte flows for each Regenerator unit. The design provides additional benefits in simplifying the piping arrangement while enabling the Regenerator units to be closely stacked above each other.

Patent Status

An application for a patent on the invention has been filed through the Patent Cooperation Treaty (PCT) process and has been published as WO2018/018145.

The key technical features of the invention include:

- A system and method for storing electrical energy, in particular for regenerative fuel cells.
- An energy storage system comprising a particle regeneration subsystem for regenerating metallic particulate fuel, a fuel storage subsystem and a power generation subsystem for producing electrical energy from the metallic particulate fuel.
- The provision of one or more intermediate tanks to assist in the release of oxygen to the atmosphere and/or the settling of the metallic particulate fuel from the bearer electrolyte.
- The independent flow of electrolyte and/or fuel between the various subsystems

About ZincNyx Energy Solutions

ZincNyx Energy Solutions, a wholly owned subsidiary of MGX, has assembled an experienced team to execute the development and commercialization of a dependable renewable energy source. With both environmental and efficiency factors in mind, ZincNyx strives to meet the growing need for secure and reliable power. MGX intends to publicly list ZincNyx and pay a partial share dividend to MGX shareholders of record ([see press release dated April 3, 2018](#)). The record date is expected to be announced shortly.

About MGX Minerals

MGX Minerals is a diversified Canadian resource company with interests in advanced material and energy assets throughout North America. Learn more at www.mgxminerals.com.



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