Zinc8 Energy Solutions Announces Progress on Their Energy Storage Technology and Provides Corporate Update

VANCOUVER, BC, May 11, 2023 /CNW/ - Zinc8 Energy Solutions Inc. ("**Zinc8**" or the "**Company**") (CSE: ZAIR) (OTC PINK:ZAIRF) (FSE:0E9) is pleased to provide an update as to the progression of their technology. In 2023, two additional US patents were granted bringing the Company's total portfolio to 16 international patents which cover major markets in North America, Asia, and Europe, and 5 additional patents under review. These patents protect the Company's interests by ensuring that they can control commercial use and success of the technology.

Technical Development

- Zinc8's technical development team has worked towards the next-generation fuel cell stack that is expected to outperform the company's previous design iteration completed for a North American cloud provider. The improvements target higher reliability and higher power performance resulting from higher fuel utilization and more efficient electrochemical process that are designed to meet New York Power Authority's ("NYPA") specifications and requirements.
- Zinc8 has improved its in-house rapid prototyping and testing capabilities to meet NYPA's timeline. These activities are expected to validate several proprietary methods for controlling and monitoring stack performance that can lead to multiple IP opportunities.
- Multiple breakthrough discoveries have allowed engineers to incorporate additional cells in a single stack without compromising the performance or fluid distribution. Additional cells allow for scaling, lowering the cost and the opportunity to produce a product or Energy Storage System "ESS" by increasing the charging power per system installation.
- A new seal has been incorporated into the new stack design to achieve higher reliability.

Research & Development

- Zinc8 has expanded its R&D team while increasing its small-scale testing capabilities by introducing various innovative characterization tools and methods. This significantly reduces the testing cycle time and minimizes Zinc8's expenses and resources, which otherwise would have been required for large-scale characterization testing.
- The team has discovered additives for the electrolyte to increase the charging operation's reliability and reduce its maintenance frequency and cost.
- The team has refined the understanding of charge and discharge operations and has identified critical parameters towards reaching the target goal of 20,000 hours of run time (at rated power capacity) per stack replacement.

Cathode Production

- The team has tested and identified alternative raw materials for use in the cathodes in an effort to increase the resilience against supply chain disruptions.
- The production process has been refined under trade-secret to make advancements in production scaling and quality control.
- The production team has produced 60+ kW's of cathode material to support development activities for 2023.
- Zinc8 has installed new cathode pilot-plant production equipment for advancing to a MW-production facility in Vancouver BC. It has been commissioned and initial procedures have been

developed for production scaling.
- Using the new cathode pilot plant production equipment, the team has been able to produce a 10-meter-long, continuous sheet of electrode that can be implemented in roll-to-roll manufacturing for MW production.

Project Update

- The team has completed the enabling work for the NYPA project which will allow the company to further its installation goals.
- The team has completed deliverables for contractors to bid for the site prep work. This includes manuals, site drawings, internal layout of components, and circuit designs.
- Zinc8 has assessed the suitability of a facility in Kingston, New York, for product manufacturing. The evaluation involved scrutinizing several aspects of the building, including its layout; accessibility to gas, electric and water services; construction quality; and loading docks, among others. Collaborating with NY contractors to identify and define the company's specific requirements for the production plant, such as layout and potential throughput and needed space for each subassembly station.

The Company also announces that Mr. Bernard Pinsky has resigned as Director of the Company. The Board of Zinc8 would like to thank Mr. Pinksy for his insight and experience in helping move the Company towards commercialization and wish him well in his future endeavors.

As Zinc8 works towards transitioning into the next phase, we are refocusing on internal roles and responsibilities to better align with the scaleup of the organization and incorporate prospective clients/customer's requirements and specifications into the technology to ensure that their energy storage system is able to integrate more renewable energy as well as meeting net carbon zero goals.

"We are extremely pleased with our progress," said Tristan Sloan, Zinc8's Vice President, Tech Development. "Over the years, we have built a strong internal core competency for the Zinc-air technology focusing on particles generation, dissolution, and fluidization. We have also put together a strong team of technical experts from electrical, mechanical, electrical, and modelling fields. With our team's persistent and dedicated effort in developing the Zinc Regeneration Subsystem, Fuel Management Subsystem, and Power Generator Subsystem, we have internally demonstrated the potential of these various subsystems. Our next major step is to leverage these developments and assemble the batteries to fulfill prospective client's and partner's requirements in future projects."

"It's been a journey in supporting the transition from fossil fuel to renewable energy," says Ron MacDonald, President, CEO, and Director of Zinc8. "To see support from various US government levels, our company's shift towards scaling up of our technology needs internal alignment so we can integrate more renewable energy into the energy mix for our clients."

"The Zinc8 Energy Storage System seeks to help communities access reliable and low-cost energy in the future," says Dr. Simon Fan, Zinc8's Chief Technical Officer and Executive Vice President, Strategy and Operations, "Our technology, when refined, is expected to allow for more renewables for our power ecosystem and help modernize our grid to meet consumer choice and demand for electricity."

Zinc8 Energy Solutions focuses on developing and commercializing its low-cost, long duration ZESS for utilities, microgrid, and Commercial & Industrial markets. By using the patented ZESS as a standalone or an enabling technology, it allows opportunities for peak demand reduction, time-of-use arbitrage, and participation in both the value stacking programs and the distributed long-duration energy storage space, all in conjunction with the opportunity for a significant reduction in carbon footprint. The long duration (8-100+ hours) ZESS has no fire and explosion risk, has no capacity fade over extensive lifetime, and offers complete charge operational flexibility.

About Zinc8 Energy Solutions Inc. Zinc8 has assembled an experienced team to execute the development and commercialization of a dependable low-cost zinc-air battery. This mass storage system offers both environmental and efficiency benefits. Zinc8 strives to meet the growing need for secure and reliable power. To learn more about Zinc8's technology, please visit: https://zinc8energy.com

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More about the Zinc8 Energy Storage System (ESS)

The *Zinc8* ESS is a modular Energy Storage System designed to deliver power in the range 20kW - 50MW with capacity of 8 hours of storage duration or higher. With the advantage of rechargeable zinc-air flow battery technology, the system can be configured to support a wide range of long-duration applications for microgrids and utilities. Since the energy storage capacity of the system is determined only by the size of the zinc storage tank, a very cost-effective and scalable solution now exists as an alternative to the fixed power/energy ratio of the lithium-ion battery.

Technology

The *Zinc8* ESS is based upon unique patented zinc-air battery technology. Energy is stored in the form of zinc particles, similar in size to grains of sand. When the system is delivering power, the zinc particles are combined with oxygen drawn from the surrounding air. When the system is recharging, zinc particles are regenerated, and oxygen is returned to the surrounding air.

Applications

The flexibility of the *Zinc8* ESS enables it to service a wide range of applications. Typical examples include:

- Smoothing energy derived from renewable sources such as wind and solar
- Commercial/Industrial backup replacing diesel generators
- Industrial and grid scale, on-demand power for peak shaving and standby reserves
- Grid-scale services such as alleviating grid congestion, deferring transmission/distribution upgrades, energy trading and arbitrage, and increasing renewable energy penetration.

Architecture

The *Zinc8* ESS is designed according to a modular architecture that enables a wide variety of system configurations to be created from a small number of common subsystems. Each subsystem implements a single element of the technology:

- The Zinc Regeneration Subsystem (ZRS) provides the recharging function
- The Fuel Storage Subsystem (FSS) provides the energy storage function
- The Power Generation Subsystem (PGS) provides the discharging function

Notice Regarding Forward Looking Statements

All statements and disclosures, other than those of historical fact, which address activities, events, outcomes, results or developments that Zinc8 Storage anticipates or expects may or will occur in the future (in whole or in part) should be considered forward-looking statements.

Forward looking statements in this press release include that we can execute the development and commercialization of a dependable low cost zinc-air battery; that our mass storage system offers both environmental and efficiency benefits; that we can help meet the needs for secure and reliable power, that the Company will establish a manufacturing facility in the United States; that the technology will perform as expected and described in this news releases; that the Company will realize benefits of the technological advanced made by its team; that the patents will offer the Company protection for its intellectual property as described herein; that the Company will be able to secure purchase orders for its batteries, clients and partners for its projects; that the Company will be able to complete its project demonstrations to specifications and on the projected timeline; that the Company will be able to lease a commercial facility, retrofit and utilize it in commercial production; that the Company will be able to successfully transition to commercial production; that the Company will be able to scale operations; that the results of the Company's product testing are indicative of how the products will work in practice; that the proposed facility in Kingston, New York will be suitable for the Company's needs; and that the Company's strategy for mitigating supply-chain disruptions will be successful. Zinc8 Energy Solutions believes the material factors, expectations and assumptions reflected in the forward-looking statements are reasonable at this time, but no assurance can be given that these factors, expectations and assumptions will prove to be correct. The forward-looking statements included in this news release are not guarantees of future performance. Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in such forward-looking statements including, without limitation: that we will not have sufficient funds to execute our business objectives as planned or at all; that we are not able to raise funds to meet our financing fees; that our technology fails to work as expected or at all; that our technology proves to be too expensive to implement broadly; that customers do not adapt our products for being too complex, costly, or not fitting with their current products or plans; our competitors may offer better or cheaper solutions for battery storage; that we are not able to establish a manufacturing facility in Kingston, New York or elsewhere; that we are not able to scale our production; that we are not able to secure purchase orders for our products; that the Company is not able to commercialize it products as expected or at all; general economic, market and business conditions; increased costs and expenses; inability to retain qualified employees; our patents may not provide protection as expected and we may infringe on the patents of others; that Zinc8 may not have continued support from local, state and federal government; that Zinc8 may not open a manufacturing facility; that federal funding in the United States may not be available to Zinc8 on favourable terms or at all; and certain other risks detailed from time to time in Zinc8 Energy Solution's public disclosure documents, copies of which are available on the Company's SEDAR profile at www.sedar.com. Readers are cautioned that the foregoing list of factors is not exhaustive and are cautioned not to place undue reliance on these forward-looking statements.

The forward-looking statements contained in this news release are made as of the date hereof and the Company undertakes no obligations to update publicly or revise any forward-looking statements, whether as a result of new information, future events or otherwise, unless so required by applicable securities laws.

Neither the CSE nor any Market Regulator (as that term is defined in the policies of the CSE) accepts responsibility for the adequacy or accuracy of this release.

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CNW 11:29e 11-MAY-23