**Job Description –**

**Electro-Chemical Battery Development Engineer & Lab Manager**

## About e-Zinc

e-Zinc is an energy storage startup based in Toronto with a breakthrough technology poised to disrupt the market. As the global energy grid moves to higher levels of penetration of renewable energy, there will be an exponential increase in demand for low-cost, flexible, long-duration energy storage. This is the market targeted by e-Zinc, the first in the world to “metalize” electricity. e-Zinc technology is also fire resistant, made of fully recyclable materials, does not rely on precious metals, and has a fast response time.

e-Zinc has recently won a number of awards for its technology and business plan including;

* [Raised $3.5M in an oversubscribed round and were featured in Greentech Media](https://www.greentechmedia.com/articles/read/canadas-e-zn-raises-millions-to-commercialize-long-duration-zinc-storage)
* Won a $2M grant from Sustainable Development Technology Canada
* [Won a $1.6M grant through Breakthrough Energy Solutions Canada](https://electricautonomy.ca/2020/02/12/breakthrough-energy-and-nrcan-award-funding-to-canadian-innovators-including-ev-charging-and-battery-start-ups/)
* [Won a USD $1.3M grant through California Energy Commission’s solicitation for non-lithium technologies](https://www.energy.ca.gov/media/3565)
* [Won a $700K grant as a finalist in NRCan’s Charging the Future Challenge](https://www.newswire.ca/news-releases/impact-canada-s-charging-the-future-challenge-finalists-872005186.html)
* [Named to Cleantech Groups Top 50 companies to watch](https://www.cleantech.com/release/top-companies-delivering-high-impact-solutions-named-in-inaugural-list/)

e-Zinc is now well capitalized through venture and grant financing to fund its future growth. This promising cleantech venture is now looking to expand its talented team to bring its technology to market to support the renewable energy transformation.

## Opportunity

e-Zinc is searching for an exceptionally talented Electro-Chemical Battery Development Engineer and Lab Manager to be responsible for running the product development test program for the e-Zinc Zinc-Air Energy Storage Cell. This is a rare opportunity that will provide a platform for the right person to help shape a young company’s technology and product strategy and contribute meaningfully to its success. The ideal candidate will appreciate this because he or she thrives in an entrepreneurial environment, is intelligent and technically savvy, has a passion for success, and will stop at nothing to ensure we achieve our goals collaboratively and collectively.

## Accountability

Reporting to the VP Engineering, the Electro-Chemical Battery Development Engineer and Lab Manager is responsible for directing the development of the test procedure, documention of performance and reliability data on the prototype test fleet, performance bugs, root cause problem resolution and ownership of the uptime of the test lab to support the product development timeline.

The successful candidate is a subject matter expert and training resource for the other engineers in the department so that the team collectively outputs high quality work on a timely basis. The person is accountable for clarifying and documenting the root cause of malfunctions in the prototype test cells to the team so that practical engineering solutions can be developed.

This role has a hands-on component that will appeal to a detective/inventor/engineer. The successful candidate will be involved in testing/troubleshooting/measuring and documenting the prototype cell performance.

In addition, the person will be a dynamic participant in and lead specific projects, supervising engineers, students and technicians, selecting and specifying test equipment and laboratory instruments and making improvements to the test procedures depending on the needs of the company, and in doing so, will take on more responsibilities as the business grows.

## Position scope and responsibilities

* Lab Management
  + Supervise 4-5 engineers, test technicians and/or engineering intern students.
  + Lead the Test Lab staff and lab activities ensuring timely completion of all work
  + Ensure all lab staff work safely following established protocols at all times
  + Develop and execute action plans ensuring that staff are fully deployed to support testing and production objectives
  + Mentor and guide lab staff in their work providing direction, feedback, performance appraisals, as required
* Facility set-up and operation
  + Specify, select, source and install laboratory instruments and equipment associated with testing and integrating battery cells into battery packs and energy storage systems.
  + Optimize laboratory layout, establish lab hygiene procedure, and maintenance processes to maximize test uptime of prototype cells as new generations of cells come through the lab.
  + Manage spare parts inventory and lab consumables and re-order thresholds.
  + Develop and carry out procedures for preparation of electrolyte, loading the electrolyte into cells and conditioning the cells.
  + Design test procedures, train test engineers, technicians, and oversee testing process cell and system testing and installation.
* Prototype testing, data and root cause analysis and documentation.
  + Participate in the assembling of electro-chemical cells and integration of inverters/charge controllers as defined by Engineering.
  + Develop and execute Design of Experiments (DOE) on functionality and performance of zinc-air cells and systems.
  + Create test procedures and operation manuals.
  + Prepare and maintain lab test reports, tracking results against parts configuration.
  + Create Excel macros and VBA routines to auto-process raw data into useful reports. Tabulate data over extended run tests, accelerated life tests and try-out parts tests.
  + Identify root cause of malfunctions and early warning signs of impending malfunction. Tabulate and manipulate date to report trends, Mean-Time-Between-Failures (MTBF), statistical distributions of cell populations.
  + Design tests and evaluate compliance to industry standards.
* Field Commissioning, Monitoring and Service
  + Coordinate with others on the deployment of demonstration systems as they move from lab testing to field demonstration.
  + Commission Energy storage systems for field operation.
  + Responsible for remote field monitoring, reliability and performance tracking and conducting field service as needed to maintain system uptime.
  + Willingness to travel and work extended hours as needed to maintain system availability and uptime is required.
* Continuous Improvement
  + Explore and develop solutions for solving problems that may occur in the integration and operation of the cell systems.
  + Design and manage all raw data collection, test reports, document version administration and version control for prototype cells building a record keeping process that will take the company through field testing and into production scale.
  + Identify ways to improve cell life and durability.
  + Implement systems to automate testing, data collection and reporting.
  + Develop mass/energy balance and power/energy performance models.
* Optimize e-Zinc’s energy storage technology by bringing forward new ideas to improve performance, reliability, and cost by applying best-in-class engineering principles and methods.
* Provide timely updates to VP Engineering identifying project risks & issues. Proactively propose solutions and swiftly implement new strategies, initiatives, and measures as requested.

## Qualifications

* Minimum undergraduate degree in chemical engineering or materials science plus 10+ years of work experience in product development, engineering or manufacturing of battery cells or relevant electrochemical processes. Advanced degrees would be an asset.
* Demonstrated experience as a supervisor or manager of staff
* Registered with the Professional Engineers of Ontario (PEO)
* Solid understanding and experience in all associated aspects of product development including product specifications, design, prototyping, tooling, manufacturing, budgeting, etc.
* Working knowledge of UL 1973, UL 9540, UL 1741 and related Battery and Energy Storage system Standards.
* Knowledge of quality control processes for mass production.
* Good working knowledge of corrosion and materials compatibility
* Strong working knowledge of fluid mechanics and design of air delivery systems including dehumidification and filtration.
* Wide range of interest and knowledge base in multiple engineering disciplines; ability to quickly grasp and develop the subject matter expertise required to develop engineering solutions.
* Superior time management and organizational skills.
* A high degree of proficiency in mass/energy balance modeling.
* Hands-on experience with electrical power systems, power conversion, and renewable power generation is considered an asset.
* A self-starter and adaptive learner. Motivated to strive and succeed in a start-up environment.
* Must be legally eligible to work in Canada.

**Other Skills**

* Passionate about bringing new cleantech energy innovation to market.
* Work collaboratively with a team to reach common goals
* Experience in the battery, energy storage or the renewable power industry is considered an asset.
* Committed to the firm's success and motivated to strive and succeed in a start-up environment.
* Disciplined, hard-working and action-oriented.
* Exceptional communications skills – oral, written, and presentation skills.
* High level of maturity, integrity and personal effectiveness.
* Personal accountability and commitment to achieving and exceeding goals and objectives.

**Hours of Work and Location**

* Must be able to meet the physical demands of the position.
* Flexibility to work any shift to support product development timelines.
* Flexibility to travel domestically and internationally to support field commissioning of Energy Storage Systems.

**Language of Work**

* Work is conducted in English.

**Contact**

Please send resumes and cover letters via email using “Electro-Chemical Battery Development Engineer and Lab Manager” in the subject line to: careers@e-Zn.com

Due to a high volume of applicants, please make our job easy to identify you as a match for this role. In your cover letter please explain your interest in the position and how your skills and experience are a match to the job description. We thank all applicants for their submission, but only those selected for an interview will be contacted.

**Key Words**

Zinc Energy Storage, Zinc-Air, Battery Energy Storage, ESS, BESS, Materials Science, Chemical Engineering, Laboratory Testing, Solar, Renewable Energy