

Job Description –

Power Systems – Power Electronics – Battery Engineer

About e-Zn

e-Zn 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-Zn, the first in the world to “metalize” electricity. e-ZN technology is also fire resistant, made of fully recyclable materials, does not rely on precious metals, and has a fast response time.

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

- The Clean Tech Top 50 to Watch (www.cleantech.com/50towatch2019/)
- Canada Innovative SME’s Association [Future Star Award](https://canada-isa.org/2019/10/07/e-zn-wins-cisas-future-star-award/) (<https://canada-isa.org/2019/10/07/e-zn-wins-cisas-future-star-award/>)
- The INSEAD Business as a Force for Good (<https://www.newswire.ca/news-releases/the-second-annual-business-as-a-force-for-good-award-recognises-six-outstanding-canadian-companies-making-a-positive-impact-on-the-world-891197331.html>)

e-Zn also recently closed new venture capital 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-Zn is searching for an exceptionally talented Power Systems/Power Electronics/Battery Engineer to join the engineering department. 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 Power Systems/Power Electronics/Battery Engineer is responsible for integrating the power conversion system that charges and discharges a string (and banks of strings) of the e-Zn electrochemical cells including the software, communications and data integration with the proprietary e-Zn battery management system.

This role is responsible for the complete end-to-end delivery Power Conversion System (PCS) electrical train and system controls to support of the first functional field deployments of the e-Zn system. As such the role involves a mix of power and energy modeling, electrical system design, developing system specifications, component supplier selection, hands-on assembly and testing, and software programming.

The person is responsible for practical solutions to electrical engineering problems that may arise during prototype testing and product development in a timely manner and will be involved in the prototype build and pilot testing. In addition, the person is expected to play dynamic roles in participating or leading specific projects or supervising junior personnel as well as engaging supplier partners to make or source parts or components depending on the needs of the company, and in doing so to take on more responsibilities as the business grows.

Position scope and responsibilities

The successful candidate will carry out the following activities:

- Responsible for the design, installation, testing and certification of the Power Conversion System for the e-Zn Energy Storage System (hardware and software).
- Work with the Controls Engineer to integrate the control logic and software communication between the e-Zn Proprietary Battery Management System (BMS) and the inverter/charge controller and other protection and controls in the PCS electrical train.
- Energy throughput modeling of customer sites that may include solar, wind or diesel generation; participate in the preparation of feasibility studies.
- Connection Impact Assessments (CIA) by analyzing the impact of energy storage and/or renewable generation on the utility distribution system.
- Participate in the preparation of electrical studies: system impact assessment, grounding grid, protection and coordination, arc flash, harmonics, etc.
- Prepare technical content for project proposals.
- Prepare detailed engineering designs, single line drawings, layout drawings, conductor routings, cable schedules, grounding systems and technical specifications for construction work (greenfield and brownfield projects).
- Prepare cost estimates, RFQ's and PO's.
- Bring subject matter expertise to the engineering team and collaborate with mechanical and chemical engineers to solve system level issues.
- Participate and assist in cell and system testing and installation.

- Optimize e-Zn'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.
- Participate and assist in cell and system testing and installation.
- Optimize e-Zn'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 Electrical Engineering with a specialty in Power Systems and Power conversion plus 5+ years of work experience in product development, engineering or manufacturing. Computer or systems engineers with relevant experience may also be considered.
- Advanced degrees are considered an asset.
- Registered with the Professional Engineers of Ontario (PEO)
- Working knowledge of the Canadian Electric Code, Electrical Safety Authority (ESA) and CAN/CSA requirements.
- Working knowledge of UL 1973, UL 9540, UL 1741 and related Battery and Energy Storage system Standards.
- Wide range of interest and knowledge base in multiple engineering disciplines; ability to quickly grasp concepts from other engineering disciplines and understand how they impact the PCS.
- Knowledge of computer architectures, networking, databases and operating systems. Programming experience.
- Programming knowledge in "C/C++", MODBUS, and the SunSpec standard.
- Superior time management and organizational skills.
- Extensive experience in creating detailed engineering drawings and electrical schematics.
Please submit a portfolio demonstrating your capabilities with your application.
- A self-starter and adaptive learner.
- Must be legally eligible to work in Canada.

Other Skills

- Passionate about bringing new cleantech energy innovation to market.
- Experience in the battery, energy storage or the renewable power industry.
- Committed to the firm's success and motivated to strive and succeed in a start-up environment. Ability to handle multiple projects in parallel.
- 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 “**Power Systems – Power Electronics – Battery Engineer**” 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, Power Electronics, Power Systems Engineer, Laboratory Testing, Solar, Renewable Energy