



Jeffery G. MacKinnon, P.Eng., PE
Electrical Engineer/President

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Work Experience

March 2012 – Present

President/Principal Engineer

JMK Engineering Inc, Halifax, NS

<https://jmkengineering.com/jeff-mackinnon/>

- Perform as an independent quality reviewer for hydro utility projects including control system upgrades, station service upgrades and generator protection replacement.
- Protection and Control design, on site testing, and commissioning planning and execution.
- Project Manager and assistant project manager for various industrial and generation projects.
- Substation grounding design for small distribution substations.
- Completed design, supervised construction, and witnessed testing of hydro generation plant protection and control systems installations
- Schedule and plan development for commissioning, testing and startup of new control systems in existing plants.
- Performed power system studies at commercial and industrial facilities, including: Protection Coordination, Arc Flash Analysis and Short Circuit.
- Performed independent quality review for MV distribution and control projects on hydro generation, heavy industrial and mining sites.
- Energy modelling for increasing renewable penetration in diesel generation systems in remote islanded systems.
- Microgrid system design for the implementation of hydro generation, solar/storage, and diesel.
- Performed the role of Owner's engineer for various projects from approval through commissioning including hydro re-development, solar/storage installation, hydro protection and control upgrades.
 - Project management,
 - RFP development,
 - technical specification,
 - sub-contractor coordination,
 - procurement support, etc.
- Small solar system design and construction documents (<150kWdc installed)
- Course and workshop development on: Electrical safety, Arc Flash, and SCADA Application Development



January 2010 – March 2012

Power Engineer

H2E Inc, Liberty Lake, WA, USA

- Client contact for all detailed design and construction support.
- Development of detailed design and construction estimates for capital budgeting.
- Development of detailed drawings and schedules for material handling projects; cement conveyance, ore stacking system, straight conveyors.
- Integration of medium voltage (MV) variable frequency drives (VFD) into existing heavy industrial process
- Development of energy, system reliability and cost saving analysis reports for various industrial sites.
- Protection coordination, load flow and arc flash studies of large industrial installations in E-TAP.

September 2006 – December 2009

Electrical Engineer

CBCL Limited, Halifax, NS

- Protection Coordination and Fault Analysis of MV and LV facilities.
- Power System Design for buildings, wind farms and industrial clients (600V – 34.5kV)
- Arc-Flash Analysis of industrial sites and wind farms
- Developed capital cost estimates for industrial clients in Oil and Gas, Pulp and Paper, and Mining sectors.
- Commissioned newly installed systems within shut-down requirements, post- shut down preparation
- Completed electrical design within hazardous classified areas.
- Produced client purchase specifications for various electrical system components including but not limited to transformers, switchgear, and variable frequency drives (VFD).
- Coordinate multi-discipline teams for various light industrial and commercial buildings projects, including civil, structural, electrical, mechanical, architectural, etc.

January 2005 – September 2006

Electrical Engineer-in-Training

AMEC, Power and Process, Halifax, NS

- Responsible for site adaptations for gas station franchises across Canada
- Designed Canadian and Quebec standards for gas station franchise
- Coordinated utility services for sites across Canada
- Supported the design of American standards for gas station franchise



Education

- Bachelor of Engineering in Electrical Engineering; Dalhousie University, Halifax, NS
- Diploma in Engineering; Saint Francis Xavier University, Antigonish, NS

Publications

MacKinnon, J.; Warnick, S.; McDaniel, J.; "PLC based enterprise energy management solutions," Cement Industry Technical Conference, 2011 IEEE-IAS/PCA 53rd , vol., no., pp.1-7, 22-26 May 2011

Teacher/Lecturer Experience

- Developed and delivered ELEC 4701 at Cape Breton University
 - Industrial Power Systems
 - Spring 2014

Certifications / Registrations

- Registered Professional Engineer with Engineers Nova Scotia
- Registered Professional Engineer with Engineers PEI
- Registered Professional Engineer with Professional Engineers of Ontario
- Registered Professional Engineer State of Maine, State Board of Licensure for Professional Engineers
- IEEE Professional Membership
- Certified VTScada Integrator

Relevant Skills

- Specialized Applications: ETAP, SKM PowerTools
- Other programs: AutoCAD; MS Office applications; MS Project
- Familiar with the use and design based on NFPA 70, NFPA 70E, CEC, CSA Z462
- Strong safety awareness
- Familiar with and comfortable working on construction sites and in industrial plants

Volunteer Positions

- IEEE Smart Grid Community Marketing Committee Chair December 2017 – April 2020
- IEEE Canadian Atlantic Section Chair January 2017 – December 2017
- IEEE Canadian Atlantic Section Membership Development Chair October 2013 – January 2015
- IEEE Spokane Section Chair January 2011 – February 2012
- IEEE Canadian Atlantic Section Vice-Chair January 2006 – December 2007