



PSCAD

This course is intended for practicing engineers in power systems working in utilities, manufacturing, consulting, or academia who are interested in developing an in-depth understanding of the modern tools available for electromagnetic transient studies. Practical examples based on the consultant's extensive experience, will be specifically presented to provide a practical aspect to the workshop topics.



**Join us for a
Workshop!**

Date: January 15, 2019
Time: 9:30 am - 5:30 pm

Location: The Casablanca Hotel
19, Boulevard Moulay Rachid
Marrakech Meeting room
Casablanca Morocco

About Manitoba Hydro International Ltd.

Manitoba Hydro International Ltd. (MHI) provides innovative solutions to help customers in the energy and telecommunications sectors. As a subsidiary of one of Canada's most highly regarded energy utilities, Manitoba Hydro, MHI is proud to bring over a century's worth of utility best practice experience and our global expertise to every customer we serve.

MHI is a software development and engineering company that provides products and services to the global power systems community. MHI's flagship product, PSCAD™/EMTDC™, is the industry standard for power system electromagnetic transient simulations. The company works closely with customers to provide in-depth training and technical support.

MHI's engineering team provides consulting services for power system planning, operation, and design. The team's areas of expertise include HVDC transmission, wind and renewable technologies, and insulation coordination. MHI has a strong commitment to research and development to improve its products and services as well as to investigate new technologies.

For more information, visit mhi.ca



Agenda

9:30 - 10:00 — Welcome and presentation of MHI services

10:00 – 11:00 — Example projects of MHI

- Grid integration studies (wind turbine, PV farm ...etc)
- HVDC projects
- Network planning
- Insulation & coordination studies
- Equipment damage & network event analysis

11:00 - 12:00 — Introduction to transient simulation and PSCAD software:

- Fundamental theory of transient simulation;
- Creating a basic simulation case using PSCAD;
- Development of suitable AC system models suitable for transient studies.

12:00 - 13:00 — Lunch Break

13:00 - 14:30 — Network switching and transients:

- AC system switching studies: line energizing, transformer energizing, and capacitor switching;
- Transient recovery voltage.
- Lightning overvoltage;
- Transformer inrush, ferroresonance, and breaker restrike.

14:30 - 15:00 — Coffee Break

15:00 - 16:30 — Plant and power electronics interactions:

- AC machines in transient studies: synchronous and asynchronous machines;
- Wind generation including generator types and the system impact considerations;
- Solar energy; PV farms and solar thermal power plants
- HVDC transmission theory and examples;
- sub-synchronous resonance;

16:30 - 17:30 — Free Discussion

For workshop inquiry's and registration please contact: elalonde@mhi.ca

