

Manitoba HVDC Research Centre

The Manitoba HVDC Research Centre (MHRC) provides innovative products and services to the global power industry

MHRC is the world leader of power system simulation innovation and applied services. MHRC's mission is to create advanced technologies and applied solutions for the power systems industry. With expertise in power systems, MHRC provides a comprehensive array of engineering solutions and services. MHRC believes it's important to contribute to the industry through fostering new ideas and technologies through collaborative global partnerships.

Software Products

PSCAD

PSCAD™ - The Professionals' Choice for Power System Simulation

PSCAD is a fast, accurate, and easy-to-use power system simulator for the design, analysis, optimization, and verification of power systems and power electronic controls. When used with the EMTDC transient simulation program, PSCAD provides a rich set of tools and models for complete and accurate analysis of electrical systems. With limitless applications, PSCAD has become the visual design tool of choice for commercial, industrial, and research organizations worldwide.

The PSCAD Technical Support Team assists with software related issues and can guide users through complex studies and applications.

Engineering Services

Consulting Services

MHRC offers our clients advanced engineering solutions and supports users around the world, including equipment vendors and utilities. MHRC is recognized as a world leader in electrical power simulation, applied power systems analysis, and related technologies. MHRC's engineering team consists of multi-disciplined power systems engineers and simulations specialists who provide clients with an array of services in the following areas:

- Detailed electro-magnetic transient studies and custom model development
- Load flow and fault analysis
- Project Management
- Harmonic analysis and risk/reliability analysis
- Training and research services for power systems

PSCAD is the tool of choice for electromagnetic transient studies. In addition to PSCAD, MHRC also develops specialized in-house software and hardware for harmonic analysis, reliability and risk analysis, corona and field effects, and real-time testing of protective and control devices.



MHRC's mission is to pioneer innovative technologies for the global electric power industry and Manitoba Hydro by supplying power system simulation tools, applied research, and engineering services.

Hardware Products

Specialized Tools

dcLFL - Line Fault Location System

Consisting of computer-based master stations, GPS timing units, custom wavefront detection unit electronics, and fibre optic transmitters, the dcLFL locates faults with an accuracy of ± 500 meters on an overhead HVDC transmission line.

The dcLFL was originally developed to locate faults on Manitoba Hydro's Nelson River HVDC transmission lines. This system has since been successfully installed and used in a number of other countries to monitor power lines, including Malaysia, Australia, New Zealand, India, and China.

Ice Vision System

Vision recognition automatically measures ice profiles directly on overhead transmission lines. The system is very useful for assessment and prioritization of ice mitigation resources. Quick remediation saves on wear and tear of equipment under icing conditions. The system was developed in collaboration with the University of Manitoba Virtual Reality Laboratory.

Training

MHRC provides comprehensive standard or customized education and training programs to assist in building competencies within an organization. Whether clients require a one day session, or a multiple day workshop, instructors possess the knowledge and expertise to provide a unique learning experience designed to satisfy clients' objectives.

A variety of power system, PSCAD, and custom training courses are provided by MHRC. The courses below are some of the many courses that are offered through MHRC that can be customized to suit a client's needs or as is. The courses can be provided at either the client's location or within MHRC.

Some of our courses include:

- Applications of PSCAD and Transient Studies
- HVDC Theory and Controls
- AC Switching Study Applications in PSCAD
- Wind Power Modeling and Studies Using PSCAD



PSCAD continues to be the world-renowned power system simulations software release system. There are over 35,000 PSCAD licenses sold to over 1521 organizations across 80 countries.

Research and Development

Laboratory & Testing

MHRC is equipped with two laboratories used for development, prototyping, testing, validation of electronic devices, and assembling and testing large equipment.

Research Programs

MHRC performs innovative research to support and advance the power system industry. Focusing on simulation, power electronics, and instrumentation research, we strive to present industry and utilities with practical solutions.

- CEF Electrovaya Battery Re-Purposing
- Electric ATV
- Medium Voltage DC Investigation for Remote Communities
- Wavelet based Line Fault Locator

Partnerships

Through global partnerships, new ideas and technologies are continually advanced.

For more information about HVDC Centre, please contact us.

The Manitoba HVDC Research Centre started as a research company. Over the past 30 years, we have developed collaborative partnerships and innovative technologies to diversify our offerings to include a variety of products and services for the power industry.

211 Commerce Drive
 Winnipeg, Manitoba
 Canada R3P 1A3

T +1 204 989 1240
 F +1 204 989 1277
 info@hvdc.ca
 www.hvdc.ca