Manitoba Hydro
energy for life

EMPLOYMENT OPPORTUNITY

Closing Date: 2026/03/26

Principal Network Studies Engineer

Winnipeg, MB

Manitoba Hydro is consistently recognized as one of Manitoba's Top Employers! We are a leader among energy companies in North America, recognized for providing highly reliable service and exceptional customer satisfaction. Join our team of Manitoba's best as we continue to build a company that champions safety, supports innovation, and delivers on our commitment to customer service - while actively fostering a diverse, equitable, and inclusive workplace reflective of the communities we serve.

Great Benefits

- Competitive salary and comprehensive benefits package.
- Defined-benefit pension plan for long-term financial security.
- Nine-day work cycle, typically resulting in every other Monday off to support a balanced approach to work, family life and community.
- Flex-time and partially remote work schedule (providing the option to work remotely 3 days per 2-week period), depending on nature of work, operational requirements and work location.

Position Overview:

We are seeking a permanent Principal Network Studies Engineer to join our System Performance Department in Winnipeg, Manitoba.

Under the consultative direction of the Integrated Network Performance Engineer, the Principal Network Studies Engineer provides leadership and technical expertise for interconnection and interface-related system studies. This includes leading the seasonal, operational, and long-term interface studies; coordinating with neighbouring utilities (including MISO, US utilities, SaskPower, and IESO); ensuring timely completion of seasonal limits, temporary operating studies, and transfer capability assessments; and overseeing Manitoba Hydro's participation in MISO basecase review and model validation processes. The engineer leads the interface study team to ensure high-quality deliverables, consistent processes, and effective communication with System Control and external entities.

Responsibilities:

This role is responsible for ensuring Manitoba Hydro's interface capability studies, seasonal operating limits, and regional model submissions are carried out accurately, on schedule, and in full coordination with neighbouring utilities and reliability entities.

- Lead the interface study program for the Saskatchewan, USA, and Ontario, ensuring accurate, timely transfer limits and operating guidelines are delivered to the System Control Department.
- Coordinate and communicate with neighbouring utilities (including MISO, SPC, SaskPower, and IESO) to support joint studies, outage coordination, transfer capability assessments, and cross-border modeling consistency.
- Lead and manage seasonal study cycles, ensuring all summer and winter system operating limits, ATC/NTC updates, and temporary operating studies are completed on schedule and meet reliability standards.
- Oversee temporary operating studies and develop operating recommendations for planned outages, abnormal system configurations, and dynamic system conditions.
- Provide leadership to the interface studies team, ensuring clear responsibilities, smooth workflow, consistent methods, and effective knowledge transfer within the team.
- Review and validate modelling assumptions, load flow cases, and dynamic models to ensure accuracy and consistency between Manitoba Hydro and neighbouring utilities.
- Provide study support and recommendations to System Control on interconnection capability, equipment ratings, stability limits, and corrective actions during system disturbances.
- Represent Manitoba Hydro on regional and inter-utility technical committees related to transfer capability, interconnection studies, MISO model development, and reliability requirements.
- Ensure all study documentation, models, and recommendations are maintained, organized, and available for operational, planning, and regulatory review.

- Support continuous improvement of analysis tools, study processes, and modelling methodologies for reliability, efficiency, and accuracy.
- Develop and maintain concepts, models and data for existing and future engineering and system control analysis tools. Promote research opportunities to develop and improve techniques for enhancing system reliability.
- Perform administrative duties such as training, employee performance appraisals, work scheduling and preparation of progress reports.
- Undertake a program of professional development to ensure awareness technological advancements.
- Analyze the behaviour of the integrated AC and HVDC systems during normal system operation, and system disturbances, and investigate the effectiveness of corrective actions considering under and over-voltages, under and over-frequency, system stability and equipment overloads. Prepare and issue documentation of disturbance analysis and of required corrective actions, to all concerned departments, neighbouring utilities, and reliability organizations.
- Provide liaison on system performance technical issues with representatives of other utilities and with Manitoba Hydro stakeholders in other departments.
- Coordinate with planning, design construction, commissioning and control personnel for the provision of transmission network control devices and procedures.
- Develop and maintain up-to-date models to assess equipment overloads and voltage levels. Analyze equipment rating data monitored and issued by Design Division and apply limiting ratings to models used by System Performance and System Control Departments. Assist SCD in the use of study and simulation tools as required.
- Develop and maintain concepts, models and data for existing and future engineering and system control analysis tools, including load flow models, transient stability models, and models of control and protection schemes.
- Coordinate with the Integrated Network Performance Engineer in the development and scheduling of assigned work projects, project concepts, operating criteria, and in monitoring the status of on-going assignments.
- Participate on inter-utility study task forces and committees concerned with defining interconnection power transfer capabilities.
- Review and comment on proposed system expansion plans to confirm system operating requirements are satisfied.
- Promote research opportunities to develop and improve techniques for enhancing system reliability.

Qualifications:

- Graduate in Electrical Engineering from a university of recognized standing, with a minimum of seven years of experience in power system analysis (load flow, transient stability, system dynamics), plus one year of additional training in power system analysis and operation.
- Comprehensive understanding of AC and HVDC system behavior, equipment ratings, protective relaying principles, and system operating limits.
- Extensive experience conducting load flow, stability, and specialized power system studies.
- Knowledge of HVDC system behaviour and its impact on AC system performance is essential.
- Good understanding of interconnected system operation and equipment characteristics/limitations as they relate to system operation.
- Demonstrated experience leading complex interconnection or interface studies involving neighbouring utilities (e.g., MISO, SaskPower, IESO).
- Strong analytical and problem solving skills with the ability to exercise sound engineering judgment independently.
- Strong working knowledge of industry standard analysis tools such as PSSE, DSA, and related modeling software; experience with MISO base case submissions and model validation is an asset.
- Experience providing technical leadership, mentoring, or coordinating the work of engineers or technologists is an asset.
- Proven ability to work effectively with interdepartmental teams and inter utility technical committees.
- Excellent written and verbal communication skills, with the ability to prepare technical reports and present complex concepts to internal and external stakeholders.
- Tactful and diplomatic, with the ability to gain the confidence of others.
- Knowledge of extra provincial transmission operation is an asset.
- A Master's degree and/or postgraduate courses in power system dynamics, HVDC systems, control systems, or system over voltages would be an asset.
- Good knowledge of engineering standards, safety standards, and corporate organization.
- Ability to develop algorithms for incorporation into computer programs.
- Ability to coordinate projects, manage changing priorities, and work effectively in a team.
- Capability to mentor, supervise, and train technical personnel.
- Professional member in good standing with Engineers Geoscientists Manitoba (or willingness and ability to attain within a specified amount of time).
- Must be prepared to travel to meet with external stakeholders, regulators, and for industry initiatives (e.g., MISO, MRO, NERC).
- Must possess a valid Manitoba Driver's Licence.

Salary Range

Starting salary will be commensurate with qualifications and experience. The range for the classification is $52.88-$72.45 Hourly, $101,332.40-$138,828.30 Annually.

Apply Now!

Ready to join a team that energizes Manitoba and puts safety, innovation, and inclusion at the heart of everything we do? Visit www.hydro.mb.ca/careers to learn more about this position and to apply online.

Application deadline: MARCH 26, 2026.

We appreciate your interest in Manitoba Hydro and thank all applicants. Only those selected for the next stage of the selection process will be contacted.

If you require accommodations during the recruitment process or need this posting in an accessible format, please let us know - we're committed to a barrier-free experience for all candidates.