

**SCOPE OF WORK FOR POWER ENGINEERS
NFAT REVIEW
LAST UPDATED: SEPTEMBER 20, 2013**

POWER ENGINEERS

Transmission Line Construction and Management

1. Review and assess the completeness and reasonableness of Manitoba Hydro's AC transmission line capital cost and O&M estimates including the adequacy of management reserves for the project.
2. Review and assess the completeness and reasonableness of Manitoba Hydro's AC transmission line construction indirect costs, including access roads, campsites, and off-site mitigation costs.
3. Review and assess Manitoba Hydro's construction management, schedule, and contracting plans for the design, engineering, procurement, construction, start up, commissioning, testing, and commercial operation of the AC transmission system.
4. Review and assess Manitoba Hydro's cost estimating risks and risk management practices, sensitivity analysis in construction cost estimates, contingencies, and construction cost indices for the AC transmission system.
5. Provide comparable estimates of costs for each of the foregoing new transmission projects, including Bipole III as suggested by Manitoba Hydro's NFAT filings.
6. Review and assess Manitoba Hydro's estimate for the cost of construction of U.S. transmission infrastructure to facilitate sales into MISO.
7. Review and assess the completeness and reasonableness of the technical aspects of Manitoba Hydro's existing and proposed AC & DC transmission system.
8. Define the average energy flow and transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for domestic load during peak and off-peak times with:
 - (a) Bipoles I and II only; and
 - (b) Bipoles I II and III.
9. Define the average energy flow and incremental transmission losses for exports into MISO during peak and off-peak time with:
 - (a) Bipoles I and II plus AC to border; and
 - (b) Bipoles I, II and III plus AC to border.
10. Provide an assessment of MISO transmission constraints that:
 - (a) Require new interconnections; and/or
 - (b) Require Manitoba Hydro's financial participation in US transmission project(s).

11. Provide an analysis and justification of Manitoba Hydro's need for additional North-South AC transmission when Conawapa comes on-line.
12. Review and assess Manitoba Hydro's technical need for the cost of construction of U.S. transmission infrastructure to facilitate sales into MISO.
13. Upon prior approval by the NFAT Panel, address any other issues that may be identified in reviewing Manitoba Hydro's evidence or are requested by the NFAT Panel.

