

**SCOPE OF WORK FOR KNIGHT PIÉSOLD LTD.
NFAT REVIEW
LAST UPDATED: SEPTEMBER 20, 2013**

KNIGHT PIÉSOLD CONSULTING

Construction Management and Capital Costs

1. Review and assess Manitoba Hydro's capital and operation & maintenance (O&M) cost estimates for Conawapa G.S. and Keeyask G.S., including the adequacy of management reserves for the projects.
2. Review and assess Manitoba Hydro's construction indirect costs including access roads, campsites, and off-site mitigation costs for Conawapa G.S. and Keeyask G.S.
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 Conawapa G.S. and Keeyask G.S.
4. Review and assess Manitoba Hydro's capital cost and O&M cost estimates for wind, natural gas combined cycle gas turbines, and solar facilities.
5. Review and assess Manitoba Hydro's construction management plans, schedule, and contracting methods for the design, engineering, procurement, construction, start up, commissioning, testing, and commercial operation for wind, natural gas combined cycle gas turbines, and solar facilities.
6. Review Manitoba Hydro's capital expenditure forecasts CEF 13/CEF 12/CEF 11/CEF 10/CEF 9 and explore any significant factors that led to cost increases over successive forecasts.
7. Provide a historical perspective on the construction cost components of other Lower Nelson River hydraulic generating stations (Limestone/Long Spruce/Kettle) and analyze the major components of direct cost, including:
 - (a) Spillways/dams/dikes;
 - (b) Powerhouses; and
 - (c) Turbines and generators;and compare these to the Keeyask and Conawapa G.S. costs for these components.
8. Analyze Manitoba Hydro's justifications for increasing direct costs and for increasing indirect costs with respect to:
 - (a) Labour productivity and shortages;
 - (b) Competition with other large civil projects in Canada;
 - (c) Remote location;
 - (d) Northern and First Nation jobs; and
 - (e) Other contractual hiring constraints.

9. Please provide a high level assessment of the construction planning and management of the construction costs of the new Preferred Development Plan projects, including the experience gained from the Wuskwatim project.
10. 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.