


Risk Comparison for a Western and Eastern Routed Bipole III Transmission Line

Report to the Manitoba Hydro-Electric Board

MEMBERS OF THE
MANITOBA HYDRO-ELECTRIC BOARD


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Issue / Risk	Issue/Risk - Details	Least Favorable West East	
<i>Technical</i>			
Loss of all three bipoles due to wind storms	<ul style="list-style-type: none"> ◦ Probable occurrence of 1 in 3249 years for the west line versus 1 in 7500 for the east line ◦ The consequence of this event on the Manitoba Hydro system, the loss of power on three bipoles is severe and should be minimized. 	▲	
Loss of all three bipoles due to ice storms	<ul style="list-style-type: none"> ◦ Probable occurrence of about 1 in 200 years for either the east or west line, but is dominated by line end proximity which is similar, but west line is generally closer to existing lines. ◦ Icing is at its worst near Gillam and near Winnipeg and Bipole III, east or west, is connecting these areas together. Bipole III on the east side has greater general separation which is important as this is a very probable event and occurs in winter. 	▲	
Loss of a single bipole due to wind	<ul style="list-style-type: none"> ◦ Probable occurrence of 1 in 12 years for a west line versus 1 in 15 for an east line. 	▲	
Loss of a single bipole due to other causes	<ul style="list-style-type: none"> ◦ The longer length of the west line means more chance of line faults, and other non wind/icing events. 	▲	
Achieving a timely ISD for a critical transmission line	<ul style="list-style-type: none"> ◦ Earliest ISD is 2015 east and 2017 west. ◦ The system is in a precarious load serving state until the new bipole is in place. 	▲	
Transmission development - ultimate north/south corridor densities	<ul style="list-style-type: none"> ◦ If the eastern corridor is never available for transmission development, then exceptionally high corridor densities will follow for future developments of northern generation (upwards of 45% of Manitoba generation in one corridor). ◦ With only three corridors potentially available due to the geography of Manitoba, power densities are high even with three corridors (upwards of 30% of Manitoba generation in one corridor, a typical system would have no more than 10% in a corridor). 	▲	
Material & construction cost escalation	<ul style="list-style-type: none"> ◦ The western line is over 50% longer, therefore has greater sensitivity to rises in material and construction costs, and construction mitigation costs as more of the line goes through populated areas. ◦ Material and construction costs have recently risen by about 25% this year, which has not as yet been reflected in the Bipole III line budget. 	▲	

Issue / Risk	Issue/Risk - Details	Least Favorable	
		West	East
Maintenance	<ul style="list-style-type: none"> • A longer line requires more maintenance which is more difficult in finding outage times. More costly. 	▲	
Reduced reliability benefit related to corridor loss	<ul style="list-style-type: none"> • A corridor loss is the most probable catastrophic event. The lack of paralleling of a western line means a major technical and cost vulnerability to Manitoba Hydro • The lack of paralleling may mean further reliability improvements sooner as compared to an eastern line. 	▲	
Environmental and Regulatory			
The proposed option fails a mandatory formal "Needs For and Alternatives To" review	<ul style="list-style-type: none"> • A major new HVDC line is a Class 3 development under the Environment Act (MB) and also requires a Comprehensive Study under the Canadian Environmental Assessment Act. Conduct of a "Need For and Alternatives To (NFAAT)" public review of the proposal is mandatory. MH must present and defend, in a formal hearing process, information on all options studied in order to get a positive decision that the option selected is appropriate. • MH is on the record in stating its preferred option is east of Lake Winnipeg. MH in fact started the SSEA process to site the line on the east side. Technical and economic justification does not favor a west route. A NFAAT process will get into this area of questioning. Reasons for leaving the east are not based on MH rationale which could make the NFAAT process very problematic. 	▲	
Perception of significant impact to "Pristine Wilderness"	<ul style="list-style-type: none"> • Pristine wilderness is found throughout Manitoba's Boreal forest and will be at issue with any route traversing Manitoba's boreal forest. • The perception that the east side is "pristine wilderness" has taken root in many circles. This issue, in association with a new HVDC transmission line has not been tested elsewhere. 	▲	▲
Major community & Public demand for a detailed public inquiry into the process and decision for a west option	<ul style="list-style-type: none"> • It is very probable that both east route and west route communities, non-government organizations and publics will demand, before environmental assessment proceeds, a full inquiry into how the decision was made for a west option. • MH is on record as preferring the east side and has clearly struggled internally with the economic and technical justification supporting a west route. 	▲	

Issue / Risk	Issue/Risk - Details	Least Favorable	
		West	East
Major opposition by international environmental organizations as part of their international campaigns demanding further significant protection of Canada's boreal forest	<ul style="list-style-type: none"> • Large international organizations are opposing development in many areas of Canada's boreal forest. One cannot reduce the risk by simply moving to another area in the boreal. Transmission lines are being used as a "poster boy" to stop hydroelectric developments in the boreal forest. Letters sent by NRDC and its members to the Manitoba Ministers have been clear in this regard. No matter where the next HVDC transmission line is routed it is very likely it will be opposed in order to stop hydroelectric development. • The NRDC has declared a very large portion of the boreal forest in eastern and northern Manitoba and in northwestern Ontario as a "Bio Gem" needing protection from hydroelectric development. NRDC has launched major e-mail campaigns to protect this Bio Gem. Recently an e-mail campaign has been launched to pressure Manitoba to move forward on further protection for the Poplar / Nanowin River Park Reserve. Environmental organizations are also demanding significant increased protection of the Canada's boreal forest as a means to ensuring the sustainability of Canada's Boreal Woodland Caribou population. 		▲
Aboriginal community opposition	<ul style="list-style-type: none"> • Decision to locate Bipole III in the west will be challenged by west side aboriginal communities as a threat to their Traditional Territories. • Significant west side opposition may be expected, for example by Cross Lake First Nation whose Hydro related concerns have enjoyed the support of Robert Kennedy Jr. and his international environmental organization. • Manitoba Hydro's east side aboriginal community consultation work did not encounter major opposition. • East side Aboriginal communities supportive of the proposal for the East Side World Heritage Site may challenge an east Bipole III. 	▲	
Demands for higher compensation	<ul style="list-style-type: none"> • The public / communities (Aboriginal & others) will become aware of the increased cost associated with the west side option and may well demand equivalent compensation. • Communities affected by a west side route have not had any involvement to date and will place their own value on their wilderness. 	▲	
Major opposition by local environmental organizations	<ul style="list-style-type: none"> • Local environmental organizations will, as a matter of principle, oppose the next HVDC line no matter where it is located. Environmental organizations are demanding more progress on formally protecting natural areas before further development occurs. • The Manitoba Environment Act and the Canadian Environmental Assessment Act ensures formal opportunity for such groups to present their case. Site selection and environmental assessment processes must move forward in spite of this opposition. 	▲	▲

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		West	East
World Heritage Site Process defers or eliminates the availability of the east side for transmission	<ul style="list-style-type: none"> Manitoba Hydro's ultimate transmission requirements, should the available 5000 MW of generating capacity be developed, include transmission corridors in the east, Interlake and western parts of Manitoba. This is largely driven by major geographic features and security and reliability criteria to avoid having too many lines in any one corridor. The east side of Lake Winnipeg Planning Initiative report stated: "There may be a perceptual discrepancy in designating a significant part of the east side of Lake Winnipeg as a United Nations World Heritage Site only to have a major transmission corridor traversing it." 		▲
ROW expropriations will be needed	<ul style="list-style-type: none"> Transmission lines are not welcomed by private landowners and property rights acquisitions can be very difficult. An east side route traverses private lands between the Winnipeg River and Winnipeg whereas a west line route essentially traverses private lands from The Pas to Winnipeg. This longer length of private lands traversed by a west route significantly increases likelihood of needing to expropriate lands for the right of way. 	▲	