

## **BIPOLE III COALITION PROMOTES EAST SIDE ROUTE**

### **Executive Summary**

- Manitoba Hydro recommended that Bipole III be built on the east side of Lake Winnipeg.
- The NDP Government rejected the recommendation and ordered Hydro to build the line on the west side of the province.
- Retired engineers, landowners, and concerned citizens have formed the Bipole III coalition to inform the public on the benefits of building down the east side.
- Additional cost of building on the west side will be over \$1 Billion.
- The NDP government is prepared to spend over \$1 Billion just to save 10 sq. km. of boreal forest, which represents only 0.025% of the total proposed UNESCO heritage site.
- Calculations of costs are presented in this report, including other issues pertinent to the east – west decision

See the entire presentation

The mission statement for the coalition is as follows:

***“The Bipole III Coalition is a grass-roots organization of concerned citizens that aims to educate and promote increased public awareness that a route on the east side of Lake Winnipeg is superior to a route on the west side of the province for the Bipole III transmission line proposed by Manitoba Hydro. The east-side route is preferable because of greater economic, social, technical, and environmental benefits for all Manitobans. The Coalition is not affiliated with any political party.”***

Benefits of the eastern route will be illustrated by reviewing economic, technical, environmental and social issues.

**Line Cost**

The western route is 1364 km. in length, whereas the eastern route is approximately 885 km. making it 479 km shorter. The longer western route will cost \$ 532 Million (M) more to build.

**Losses**

Being longer, the western route will also create additional power losses, estimated to be 40 MW. To compensate for the additional losses an equivalent generator would have to be connected to the grid. The extra losses are valued at \$320 M. using Wuskwatim as a basis for generation costs.

**Reliability Costs**

The west line has limitations in providing adequate transfer capability upon loss of Bipoles I and II. The calculated reliability cost of the west line is \$160 M.

**Total cost**

By adding the above 3 parameters the cost of the west route exceeds the east side by \$1.012 Billion.

**Transmission Capability**

The longer west side route will carry only 2/3 (2,000 MW) of Bp I and II power (3,000MW) should both lines fail, as they did in 1996. However the shorter east side route will carry the full transmission requirements (3,000MW) of the existing lines. The extra transmission capability of the eastern route makes it a superior back up for the existing lines.

**Reliability**

It is a general rule that the shorter the line, the more secure the line, due to reduced exposure to the weather elements. Hence the east side route, being substantially shorter, will provide greater reliability. Additionally the west side route passes through the most severe storm prone area in the province, which is near the Pembina valley escarpment. Twenty five years ago Hydro recognized this vulnerability by placing its distribution lines underground in this area,

commonly referred to as “tornado alley”. Hence one of the primary reasons for building this line, for reliability purposes, is severely reduced by placing it in such a hazardous location.

### **Environmental-farming**

The west route takes prime farmland, particularly in the Red River valley, out of production. The towers will also cause permanent inconvenience to farmers who utilise irrigation systems, large equipment, and GPS systems.

Aerial crop spraying will also be adversely affected and becomes not only an inconvenience, but a safety issue. These disadvantages will be ongoing in perpetuity.

### **Environmental -UNESCO**

Much has been made of the environmental aspects with the contention that the presence of a transmission line on the east side will jeopardize the chances of designating a portion of the boreal forest as a UNESCO World Heritage site. United States special interest groups have petitioned the current government to prevent cutting of any trees. The additional cost of the west route is an unrealistic price to pay, just to enhance the prospects of a Heritage site designation. The transmission line and boreal forest can co-exist and still be designated as a heritage site, as was done at Banff and Jasper.

Banff has roads, hotels, restaurants, service stations, ski resorts, camp sites, nature trails, etc. and perhaps, surprising to some, even transmission lines and power plants. If Banff and Jasper attained the UNESCO Heritage designations, with all of the associated development and infrastructure, it's reasonable to assume that the east side would as well.

### **Environmental – “Deforestation”**

Members of the current government have claimed there would be mass deforestation with the east line. This statement is simply not true.

With judicious routing, the length of line crossing the proposed heritage site will be no more than 150 kms. The clearing required for the line, will be approximately 0.025 % of the proposed 40,000 sq. km site. Stated another way, if 4,000 trees were lined up in a row and one

tree was cut down, this one tree represents the clearing required for the line. No validity exists for the claim of deforestation!

### **Pimachiowin Aki**

The Bipole III Coalition supports the Pimachiowin Aki world heritage site initiative. Tourism development, which promotes knowledge and understanding of the aboriginal culture, is beneficial for all Manitobans. Roads and power will be required for the tourism development and Hydro could assist in this venture.

### **Aboriginal**

There are 16 aboriginal communities impacted by the east route and 15 by the west side, - essentially same number impacted by either side.

### **Future routing of 4<sup>th</sup> Line**

There are only 3 possible transmission corridors for northern generation to southern Manitoba – the east side, Interlake (location of existing DC lines), and the west side. For separation of lines, only the east and west sides are now available. Furthermore, the next (4<sup>th</sup>) line will most likely be an AC line due to the technical limitations of DC transmission. The optimum termination for the 4<sup>th</sup> line is in western Manitoba, with possibilities of ties to Saskatchewan. Separation of Bipole III and the 4<sup>th</sup> line is essential for security reasons. Hence, building Bipole III on the west side precludes the feasibility of separating these lines to acceptable standards.

### **Advancement of 4<sup>th</sup> Line**

Since the longer west line does not have the same reliability benefit as the east line, the 4<sup>th</sup> line from the Nelson River, may have to be advanced in time. An additional expense would be encountered due to the carrying charges for the years of advancement. A study, which considers loads forecasts with generation and transmission requirements, is necessary to establish the timing and cost. This study is quite complex requiring computer programs and system data, which are available only in Hydro. Hence the specific costs have not been determined, but it is recognized as a parameter that needs to be evaluated for a fair comparison of the 2 routes.

**Conclusion**

It appears that the east side - west side decision has been made on the basis of current government's desire to look green, especially to the US special interest groups.

When all of the above parameters are evaluated the only reasonable conclusion that can be reached, is that the east side is clearly the superior route.

Will Tishinski,  
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## **Appendix - Calculating costs of west side route vs east side**

### **Source of Input Data:**

West side line cost = \$1.081 B (PUB/MH I-4, page 1, 2007-12-07)

East side cost = \$0.671 B (PUB/MH I-4, page 1, 2007-12-07)

Additional losses – 40 MW (Bob Brennan CEO Manitoba Hydro) at Hydro Committee hearing, Oct. 25, 2007)

Wuskwatim cost - \$1.6 B (from MH website)

Population of Manitoba – 1.2 million

Typical size of family – 5

### **Calculations**

#### **Losses**

Unit cost for Wuskwatim:  $\$1.6\text{B}/200\text{MW} = \$0.008 \text{ B/MW}$

Cost of losses =  $40 \times 0.008 = \$0.32 \text{ B}$

These calculations are based on the need to build extra capacity to offset the additional line losses associated with the west route

#### **Line**

Additional line cost of west side based on 2007 estimate =  $(1.081 - 0.671) / 1.081 \times 100 = 38 \%$

2010 estimate for west side line = \$1.4 B

Additional line cost =  $0.38 \times 1.4 = \$0.532 \text{ B}$

### Reliability Costs

Quote from PUB Order No. 116/08, July 29, 2008, p. 142:

“MH advised that an outage of Bipoles I and II during the summer season could result in an additional cost to the corporation of \$160 million over the cost that would be incurred if Bipole III were built down the east side”

Total cost (losses, line & stations)

$$=.532 + 0.32 + 0.16 = \$1.012 \text{ B} = \$1,012 \text{ M}$$

$$\text{Cost of west side route per person} = 1,012/1.2 = \mathbf{\$843}$$

$$\text{Cost per family} = 843 \times 5 = \mathbf{\$4,215}$$

### Calculating Portion of Transmission Line Clearing Through Proposed Heritage Site

Heritage site = 40,000 sq. km.

Length of line through Heritage Site = 150 km.

Line clearing width = 217 ft. =  $217/3281 = 0.0661$  km.

Area of line through Heritage Site =  $150 \times 0.0661 = 9.91$  sq. km.

Line occupies  $(9.91/40,000) \times 100 = 0.0247\%$ , say **0.025 %** of Heritage site