

MANITOBA HYDRO PREFERRED DEVELOPMENT PLAN

Manitoba Hydro's (MH) Preferred Development Plan includes; the development of Keeyask and Conawapa generating stations on the Nelson River, additional transmission line interconnections and electrical energy exports to the US, and the employment of a new high voltage direct current (HVDC) transmission line (BIPOLE 3) from the Nelson River to southern Manitoba.

The underlying question is - What is the status of Manitoba Hydro's Preferred Development Plan (PDP)? This article will undertake to answer this question in two sections; a) Government control of the regulatory review process, and b) Public Utilities Board (PUB) review of the PDP.

PART A - GOVERNMENT CONTROL OF THE REGULATORY REVIEW PROCESS

Manitoba Hydro, with a current debt of \$9 billion, has proposed a Preferred Development Plan (PDP) that will cost in excess of \$20 billion over the next 12 years. The Government has allowed MH to proceed with two projects (estimated cost \$10 billion), without undertaking essential regulatory review in advance of project commitment. Unfortunately, current reviews are raising questions about the overall viability of the PDP.

Manitoba Hydro's development plans first gained public notice when MH expressed concern that its high voltage direct current (HVDC) transmission system is not reliable if they lose the transmission lines from their northern generating stations – due to an eventual reoccurrence of disastrous storm events. In 1996, for example, a major storm did happen and transmission towers fell to the ground. MH solved this problem by importing emergency power from MISO (a 176,000 MW market – US utility network) until the transmission lines were repaired. A more reliable long term resolution to this risk was viewed as critical, given that 70% of existing hydro generating capacity is routed through these HVDC lines. What was MH's long term solution to this problem? Initially, it was to build a third transmission line down the east side of Lake Winnipeg at relatively low cost.

So what happened next?

The Government overruled Manitoba Hydro and refused to allow the construction of a DC transmission line down the east side of Lake Winnipeg. Instead it directed MH to build the third DC transmission line west of Lake Winnipeg – in spite of MH's objections to; higher construction costs, reduced reliability, increased transmission losses and recognition of current west side land use. As a result of this Government directive, decisions were taken to commence with the construction of the Bipole 3 HVDC transmission line west of Lake Winnipeg, and Keeyask generating station (G.S.) on the Nelson River. The Government controlled the regulatory review process to permit the construction of these projects, based on a decision making process that disregarded the need for prerequisite regulatory review of the projects to protect Provincial interests, namely:

- *Bipole 3 - Government authorized the commencement of construction of the \$3.5 billion Bipole 3 without a prerequisite regulatory review.* The Government did not permit a need for and alternatives to review of the project by the Public Utilities Board (PUB). The Clean Environment Commission (CEC) was authorized to undertake an environmental review of Bipole 3 which was limited to the Government's designated routing of a transmission line west of Lake Winnipeg. The Government did not allow the Commission to consider any options on the east side of Lake Winnipeg.
- *Keeyask Generating Station- Government authorized the construction of Keeyask G.S. without a prerequisite regulatory review.* The Government commissioned two subsequent regulatory reviews, namely; a CEC environmental review, and a PUB review of need for and alternatives to the generating station. It is important to note that both regulatory reviews of Keeyask must take approved contracts and agreements into account, including; a) the Manitoba Hydro - First Nations Keeyask generating station Ownership Agreement, and b) approved project designs and construction/supply contracts (20% of project costs have been committed). The PUB review also included Conawapa Generating Station and proposed transmission interconnections and energy exports to the USA.

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The control of the regulatory process by Government enabled it to authorize the expenditure of \$10 billion for the construction of Keeyask G.S. and Bipole 3 in compliance with its stated and presumed objectives.

PART B - PUB REVIEW OF THE PREFERRED DEVELOPMENT PLAN

The Public Utilities Board (PUB) is currently undertaking a regulatory review of the PDP, within limitations specified by the Government. It should be noted that the PUB review must recognize the expenditure of \$1.4 billion that has been committed for the current construction for Keeyask Generating Station (estimated cost \$6.5 billion). Additionally, the expenditure of \$3.5 billion for Bipole 3 is not allowed for consideration in the PUB study. In fulfillment of its mandate, the PUB has solicited and received public input - and employed the services of eight out of province independent expert consultants to provide specific and essential analysis of the PDP. The current findings of the PUB expert consultants are raising alarms.

Some of the more notable concerns raised by the PUB consultants are noted as follows:

- It takes at least 30 years, until 2043, before any development plans studied is lower cost that the All Gas Plan, with Manitoba Hydro's Preferred Development Plan (PDP) requiring 41 years. Ref. La Capra Associates Inc. *(This finding draws into question the economics of the overall Preferred Development Plan and the Government's decision to authorize the expenditure of \$10 billion for two major components of the PDP without requiring an independent analysis of the \$20 billion Plan before project commitment.)*
- Natural gas generating stations are shown to be economic additions to MH's system, but are not a component of MH's development plan. Ref. La Capra Associates Inc. *(This finding demonstrates that natural gas thermal generating stations should be more fully considered as capacity additions, particularly in terms of providing peaking capacity and energy supply during emergencies and droughts).*
- Energy export prices are generally forecast to be lower than forecast by Manitoba Hydro. Ref. Potomac Economics Ltd. *(It has been noted by Manitoba Hydro that energy export revenues are an important element of the PDP. The economic impact of lower export revenues on the PDP should be evaluated.)*
- Energy imports have been identified as a feasible resource option but none of MH's plans take advantage of potential imports in lieu of constructing new domestic resources. Ref. La Capra Associates Inc. *(US utilities have adopted a different policy, and take advantage of imports from MH to delay the installation of domestic resources. It would be logical for MH to consider energy imports from the large MISO utility network).*
- The firm capacity of Bipole 3 will handle the addition of Keeyask, but will require an upgrade to handle Conawapa generating station. Ref. Power Engineers *(New design options and increased costs will result).*
- Development sequences with Keeyask G.S. but without Conawapa G.S. have a more favourable economic profile. Ref. La Capra Associates Ltd. Over the longer term uncertainty and risk remains....to be studied prior to a decision being made on Conawapa. Ref. Typlan *(These findings would recognize that the economics of Keeyask G.S. is affected by two factors namely;*
 - a) *20% of the cost of the generating station has been committed, and as a result it will reduce the cost and improve the economics of completing the station, and*
 - b) *Keeyask does not have to include the cost for the transmission of its energy to southern Manitoba, as this cost is covered by the separately committed cost for Bipole 3.*

Notwithstanding the economics of completing Keeyask G.S., the construction of the \$10.2 billion Conawapa generating station after Keeyask G.S. does not have a favourable economic profile and other options must be considered.)

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- Manitoba Hydro has not established the need for expanded transmission to the US, particularly in cases without Conawapa G.S. Ref. La Capra Associates Ltd. (*This finding requires full consideration of the economics of US exports tied to Conawapa G.S.*)
- It would be prudent to recognize that market transformations could have a dramatic impact on the economics of the PDP to alternative plans. Ref. Elanchus Research Associates Inc. (*This reality includes current and anticipated energy demand side management technologies and energy generation/transmission technologies that would alter domestic and export demand.*), and
- Given the expected fragility of Manitoba Hydro during the first ten years of any resource plan...and beyond...Government may wish to calculate and reserve some funds....to act as a buffer in the event of a drought and the need for financial assistance to Manitoba Hydro. Ref. Morrison Park Advisors (*This advice is important as the payment of MH debt is guaranteed by the Province.*)

So, where does this leave us?

The above findings of the PUB's Independent Expert Consultants require resolution. Manitoba Hydro has embarked on the largest construction project in the Province's history – all to meet forecast increased domestic and export demand for electrical energy – and to reap the reward of increased revenues that may or may not be realized when the projects come on line. The Government's decision to authorize the commitment of \$10 billion for two PDP projects without regulatory review raises questions about the validity of the Government's decision making process – particularly as current analysis questions the economics of the PDP and its remaining projects. While the current PUB regulatory review cannot alter past decisions and commitments of Government, the PUB's report can be expected to provide recommendations to prevent future ill considered expenditures related to;

- PDP projects that should be reconsidered, deferred or replaced (*e.g. Conawapa G.S., Bipole 3 upgrade, US interconnections, and exports tied to Conawapa G.S.*)
- Development plans replacing/augmenting the uncommitted balance of the PDP that should be considered to meet/reduce future electrical energy demand in Manitoba (*e.g.natural gas generating stations, energy/capacity imports, alternate energy production and upgraded demand side management programs/initiatives to reduce uneconomic demand.*)
- Projects that are committed, and whose in service dates and contracts cannot be economically reversed due to committed expenditures (*e.g. Keeyask G.S.*)
- Bipole 3 is not allowed to be considered by the PUB. (*project expenditures were committed without review*)
- *The financial implications of Manitoba Hydro's development plans on future rate increases and debt management.*

The PUB report is expected to be issued in June, 2014.

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