

MPA Morrison Park Advisors



**Direct Testimony on the
NFAT Review
Before the Manitoba PUB**

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MPA's Scope of Work

Analyse Manitoba Hydro's Preferred Development Plan (PDP) from a commercial perspective

- Commercial reasonableness of the PDP in light of potential alternatives available to Manitoba Hydro
- Costs, benefits and risks for each relevant stakeholder
- Commercial risks being imposed on Manitoba ratepayers relating to the role of export agreements in the PDP

Consider the potential impact of the PDP on the Government and taxpayers of Manitoba

- Provincial credit rating
- Provincial access to capital markets
- Provincial budget
- Burden on taxpayers

What is the PDP?

Part 1: An immediate package of “deliverables”

- Keeyask; approx. \$850 M spent as of 31-dec-13 according to MH-109 (including interest)
- 750 MW intertie with Minnesota: highly (but not completely) negotiated, substantial expenditure of time, resources, commercial reputation
- Set of export contracts: fully negotiated, substantial expenditure of time, resources, commercial reputation

Part 2: Conawapa during 2020s

- Approx. \$290 M spent as of 31-dec-13
- Timing is still indeterminate (e.g., has shifted because of DSM plans, etc.)
- Possibility of additional export contracts in conjunction with the new capacity
- Further decision point is required
- Ongoing expenditures required – at some level - to maintain project momentum

Part 3: Other stuff in the future

- ~~Natural gas-fired plants presumed in the 2040s, but these are just a placeholder in the plan; future decision-making will be required, and no immediate consequences~~

What are the Options?

Support the PDP

- Part 1 goes ahead
- Manitoba Hydro spends resources to aggressively develop Conawapa and additional export arrangements

Support Part 1 of PDP only, recommend restricting expenditures on Conawapa

- Part 1 goes ahead
- Manitoba Hydro required to justify the “Next Dollar” spent on Conawapa
- Alternatives to Conawapa should be equally examined/pursued

Reject the PDP

- Part 1 does not go ahead, and spending curtailed on Conawapa
- Full range of alternatives should be thoroughly

Commercial View of Part 1 of PDP

- Appears to be an integrated package: not clear that it can be easily or effectively subdivided into parts, or amended; “amendment” may be effectively equivalent to “cancellation”
 - Export contracts cannot be fulfilled without a large new generation facility
 - Export partners appear to be interested in hydroelectric power, not fossil-fueled
 - 750 MW intertie has been negotiated; not clear that a smaller size intertie could be negotiated (assuming it would be desirable)
 - Changing plan specifications might entail new permitting and approvals
 - Changing timing would require renegotiation of many agreements (First Nations, exports, construction, etc.), without certainty of success
- Cancellation would result in significant cost consequences that must be borne by ratepayers, for no value in return
 - Write-off of sunk costs
 - Lost commercial reputation for Manitoba Hydro, potentially affecting ability to do business in the future (export agreements, interties, power trading, etc.)

Commercial View of Conawapa

- Has been an option for many, many years
- Subject of other review processes in the past
- Many alternative options could be examined/ pursued in the time currently believed to be available before critical decisions must be made about the project
- Given the nature of the investments made to date, it is not clear how much would actually be written off if the project were not immediately supported

**Burden is on justifying the expenditure of the
“Next Dollar”**

Method of Analysis

Identify Critical Stakeholders and their interests (MPA Report, pp. 25-28)

- Government: the decision-maker
 - Benefits from direct revenues (water rentals, capital tax)
 - Provides debt guarantee in exchange for a fee
 - A contingent assignment of part of its total access to and cost of capital to Manitoba Hydro
 - Provincial economy (and hence indirectly tax revenues) benefits from jobs and economic development of construction projects (plus social benefits, etc.)
 - Provincial economy affected by changes in electricity rates
 - Directly through the competitiveness impacts of electricity rates on business in Manitoba
 - Indirectly through the economic multiplier effect, since price changes in electricity affect the disposable income of most consumers and businesses (to varying degrees)
- Domestic ratepayers: proximate beneficiaries(?) of the resource decision

Method of Analysis (cont)

Identify Critical Metrics that can be calculated (MPA Report, p. 39)

- Government
 - Expected revenues from water rentals and capital taxes, discounted to current dollars
 - Impact of debt guarantee arrangements
 - Expected revenues from guarantee fee, discounted to current dollars
 - Likelihood and magnitude of guarantee utilization by Manitoba Hydro; impact on province of same
 - [Broader impact on provincial economy not within MPA's scope or expertise]
- Domestic Ratepayers:
 - Expected rates over time
 - Expected total rate revenue over time, discounted to

Method of Analysis (cont)

Identify Critical Risks (MPA Report, pp. 33 – 38)

- Hydrology
 - Regardless of the option chosen, Manitoba will retain a predominately hydroelectric electricity generation fleet
- Interest Rates
 - Fundamental to all capital-intensive businesses
- Export/Import Prices
 - Regardless of option chosen, Manitoba will continue to have, at a minimum, opportunity exports at some level for many years to come
- Project Capital Costs
 - Runaway cost overruns have occurred in many projects around the world, for a multitude of reasons
- Domestic Demand
 - Determines quantity of energy available for export between construction of assets, and timing of new asset requirements
- [Natural Gas Prices]

Method of Analysis (cont)

Based on available data, test various scenarios to calculate a range of expected outcomes for each metric (MPA Report, pp. 81-83)

- Manitoba Hydro tested 27 scenarios
 - Combinations of a variety of economic, energy and capital cost variables
- Manitoba Hydro also provided raw data for 99 different hydrology patterns
 - Could be combined with 27 scenarios to produce $27 * 99 = 2673$ possible “futures”
(note that for the Report, given time constraints, MPA confined itself to a representative sample of 21 hydrology patterns for most scenarios)
- Manitoba Hydro provided selected data for alternative domestic load growth expectations, and DSM (which is similar to an alternative load growth scenario, but with added direct costs to Manitoba Hydro)

Conclusions Based on Data *Originally Provided*

No Compelling Commercial Reason to Reject Part 1 of PDP

- Plans with Keeyask/750/Exports are equal or superior for Ratepayers compared to other Plans in a preponderance of “futures” tested, with or without “probability-weighting” (MPA Report, pp. 40-44, 84-94)
- Government revenues are unambiguously superior to alternatives (p. 52)
- Risks to Government from debt guarantee do not appear to be measurably different (PUB/MPA 1-027)
- This despite the fact that commercial consequences other than “sunk costs” are not taken into account in alternative Plans

No Compelling Commercial Reason to Support Conawapa

- Plans with Conawapa are more costly for Ratepayers *over the model horizon* than Plans without Conawapa (pp. 40-44)
- Government revenues, however, are unambiguously superior (p. 52)

New Data

Manitoba Hydro has submitted new information

- Different load growth expectations
- Higher project costs for Keeyask and Conawapa
- New forecasts for DSM
- New forecasts for interest rates and inflation

MPA has not had the opportunity to test the new data

- Financial data was submitted by Manitoba Hydro last Friday
- MPA has not received the SPLASH data which was used in the economic analysis previously submitted by Manitoba Hydro

MPA's conclusions are provisional with respect to Part 1 of the PDP

- Given the nature of the new data, it is unlikely that our view of Conawapa would change

Methodological Issues

Scenario Construction and Probabilities (PUB/MPA 1-035)

- Combination of variables into groups masks important questions
 - e.g., MISO prices are only partly correlated to natural gas, and especially not at night when imports to Manitoba are likely
- Application of scenario variables over full term of models limits range of outcomes, and does not reflect reality
 - Use of “Monte Carlo” models, which allow for random walks of variables through probability distribution curves, would provide an improved understanding of potential outcomes
- Choice of three probability points is inevitably controversial

Methodological Issues (cont)

Model Horizon and Terminal Value (PUB/MPA 1-17)

- Financial models typically range from 5 to 20 years, depending on the type of business or asset in question, and the purpose of the analysis
- Terminal value is typically used to encapsulate the further future
- 48-year period stretches the boundaries of modeling to near breaking
- 78-year period is simply an expression of terminal value, not an attempt to reflect reality

Methodological Issues (cont)

Cost of Capital: interest rates, equity premium, inflation (pp. 64-66, PUB/MPA 29, 30)

- Economic variables appear constructed with a bias to recent history
 - Over a 48 or 78-year term, this limitation may not be appropriate
- No range on equity premium, and limited range for inflation (neither of which reflects historical experience)

Discount Rates: time value of money (CAC/MPA 1-007b)

- For investors, discount rate = WACC; but relationship breaks down for other stakeholders
- Justification for a “consumer” rate based on real, short-term risk-free cost of money (i.e., 1.86%) is not apparent
- Appropriate to test long-term resource options across a range of discount rates, and consider relevance different

Methodological Issues (cont)

Calculating Rates of Return

- Traditional metrics, e.g., return on equity or return on capital employed, fundamentally assume that “return” is being actively maximized by the enterprise in question
 - Manitoba Hydro’s mandate is to MINIMIZE ratepayer costs, which entails minimizing returns whenever possible
- Alternative measures are required to test alternative Plans that is actually meaningful to the critical stakeholders; e.g.:
 - NPV of incremental government revenue per incremental capital employed (vs. the lowest capital Plan)
 - NPV of incremental ratepayer savings per incremental capital employed, or per incremental equity/retained

Methodological Issues (cont)

The Assumption of Existing Legislative and Regulatory Policies

- Debt guarantee fee is currently 1%, but has in the past been set at different levels
 - It could be changed by government at any time, with important consequences for relative benefits to government, cost of capital to Manitoba Hydro, rates, etc.
- Existing rate design presents costs to ratepayers on an “all-in” basis, rather than separately identifying and pricing generation/transmission/distribution
 - Profound effects on the desirability of DSM programs, the sensitivity of Manitoba Hydro cash flows to changes in demand, the relative importance of domestic vs. export sales, etc.