An Analysis of the Proposed Energie NB Power Sale

Preamble **05/01/2010**

This analysis was prepared by a concerned group of New Brunswick business people, engineers (some with a utility background), lawyers and others who wished to make an objective and non-political study to determine whether they should endorse the proposal or oppose it. The results of the study follow:

Background Facts re Energies NB Power (ENBP)

1. The New Brunswick Electric Power Commission (NBEPC) was formed in 1920. Its mandate was to provide NB ratepayers with electric energy at the lowest possible costs by operating as a non-profit institution. It was required to finance its expansions with debt and operate to efficiently produce the increasing energy demands of the province while charging rates which cover all of its operating costs plus interest and amortization of its debt.

2. In the 1950s the government of NB recognized that low cost electric energy was critical to economic growth and that capital investments of the utility in cost effective power generation and distribution facilities would assist in stimulating the economy of the province.

3. Over the past 60 years the utility has carried out its mandate and transformed into EnergieNBPower (ENBP). It pioneered interconnections with neighboring utilities to provide greater reliability of supply and to allow energy exports and imports which lowered overall costs. In 1970 it installed a 400Mw HVDC tie with Hydro Quebec (HQ) to take advantage of surplus energy available at the time from the Lower Churchill Falls development in Labrador. It maximized the utilization of NB's natural hydro resources and developed a mix of fossil fuel and nuclear generation to meet the province's needs. By taking advantage of the export market for electricity in the New England states it was able to justify larger and more efficient generating units than would have been possible as a small stand alone utility.

4. As a result, New Brunswick has enjoyed and continues to enjoy the lowest electric rates in the Maritime Provinces and rates which are about one half of those in the New England states. Only provinces blessed with greater hydro resources have lower rates.

5. ENBP's competitive advantages are its geographical location, its strong electric transmission grid, its nuclear generation facilities, hydro generation and its mix of efficient fossil fuel generation with ocean access to world fuel supplies.

6. ENBP finished its 2008/2009 fiscal year with the following financial results:

Revenues	$1,453m
Net Earnings	$70m
Book Value of Plant and Equipment	$3,585m
Shareholder's Equity (PNB)	$305m
Long Term Debt	$3,464m

   ENBP has always met its payments of interest and principal on its debt. Its bonds are rated equal to PNB bonds.

7. The question is, should these assets be sold to HQ under the terms of the MOU recently announced?

Situation if the Sale is Finalized

1. ENBP becomes a wholly owned subsidiary of HQ.

2. From the MOU "Quebec understands the important role played by New Brunswick Power …in the economy of the Province and …intends to operate the business of NBPower and its subsidiaries in a manner that respects and maintains that role."

3. HQ owns and operates GENCO assets except Belledune, Colson Cove, Dalhousie, Courtenay Bay and Grand Lake. Presumably, GENCO will still exist, owned by PNB, to operate or shutdown these facilities as and when decided by HQ on 12 months notice.

4. HQ owns and operates Nuclearco after a successful restart.

5. HQ owns and operates Transco and Disco.

6. HQ pays PNB $4.75b (assuming a successful Pt.Lepreau restart) or such sum as is necessary to retire current ENBP debt.

7. HQ freezes NB Residential and Commercial rates to 2009 level for 5 years.

8. HQ Charges NB Industrial Power Rates equal to Quebec Industrial Power rates.

9. GENCO operates its assets " …at the direction of and for the benefit of HQ".

10. HQ pays GENCO all cost of operation and generation plus $5.00/kw/month for Belledune and $3.25/kw/month for Coleson Cove if it requests that they operate. This would be $2.29m/month for Belledune and $ 3.1785m/month for Coleson Cove if all units are operational. It is unclear as to whether HQ can request that only certain units be operational at Coleson Cove.

11. HQ will pay no taxes on income or capital to PNB. ENBP paid $49m to PNB in lieu of taxes in 2008/2009 fiscal year.

12. HQ is not responsible for decommissioning costs of GENCO assets when it orders them shutdown. These costs will be recoverable from NB ratepayers as approved by the EUB of NB.

Comments on Electric Utility Operations in North America

1. Until the 1990s the electricity supply system in North America consisted of regional and local utilities operating as monopolies in their areas of jurisdiction. Utilities like ENBP owned and operated the generation, transmission and distribution of electricity. These utilities developed interconnections mainly to share the risk of equipment failures and to lower the cost of reserve capacity. Utilities with large low cost hydro generation, like HQ and Ontario Hydro, also used their interconnections to export their low cost excess energy to neighbor utilities.

2. In the 1990s, the United States deregulated the transmission and distribution of electricity to allow an open market. Generating companies with excess capacity would have access to the transmission and distribution system, for a toll fee, to sell energy to other utilities or businesses on the system. The policy was to treat electricity as a commodity and not as an essential service.

3. Utilities and private power generating companies now buy and sell energy hour by hour on an open market like other commodities. A utility needing 20 Mw to meet

   its peak, compares the current market price with its own marginal cost of generating that energy. If the market price is lower than its marginal cost, it will purchase the energy rather than generate. The market price will fluctuate hourly as the supply and

demand varies. Prices are low during off peak hours with low demand and will rise during the peak demand periods.

4. HQ has been blessed with not only large hydro capacity but also with large storage capacity behind its dams, in some cases up to 5 years capacity! This puts HQ in the enviable position where it has the option to purchase low cost energy from the market during off peak periods while storing water in its dams. It can then sell that stored energy during peak periods at a higher price.

5. In 1970, HQ was willing to make a firm power purchase agreement for 265 Mw with ENBP at energy rates which allowed each company to finance the construction of the HVDC tie line to their mutual advantage. This agreement ran out in 1976 but continues as an "at will" contract. With the current open market, a commodity provider like HQ decides whether it is in their best interests to make long term firm contracts for its commodity, to sell on the open market or to do a combination of the two. The final decision would usually be affected by the requirements of its financiers and its analysis of future markets.

6. A utility like ENBP with an interconnection to an HQ would consider a firm power contract a desirable option for meeting its energy demands. On the other hand, relying on market availability and future market prices may be considered a risky option.

7. ENBP is a member of the Northeast Power Coordinating Council (NPCC) which is a part of the Eastern Interconnection of the North American Electric Reliability Corporation (NERC). NERC was formed in the 1960s by the electric utility industry with a mission "to ensure that the bulk power system in North America is reliable".

   HQ has a separate interconnection to the Eastern Interconnection due to its DC ties. HQ is a member of NPCC.

8. Each participating utility adheres to NERC standards and is required to have generating capacity to meet its present and future demands, plus reserves. The capacity can be met by having its own generating units or by having firm power supply contracts through interconnections.

9. ENBP and HQ have two interconnections for a total transfer capacity of 1000Mw from HQ to ENBP and 780 Mw from ENBP to HQ. ENBP purchases energy from HQ when its price is attractive. HQ often purchases peak capacity from ENBP. ENBP's Millbank and Ste.Rose gas turbine generators were installed specifically to meet HQ's peak demands at the time.

   ENBP has two interconnections with the New England states with a total transfer capacity of 1000 Mw. HQ has an existing contract to use 300 Mw of this capacity. Other utilities have contracted for 30 Mw.

   HQ has about 3800 Mw of interconnections with New York State, Vermont and New Hampshire. It has an additional 1400 Mw interconnection in development with New Hampshire.

10. ENBP's current peak demand is about 2950 Mw. The average demand is about 1700 Mw.

    ENBP's lowest marginal cost generators are its hydro units and Pt. Lepreau. These units would be base loaded and deliver about 960 Mw when available. The balance of the average load would either be supplied by purchases from HQ, from the Grid or Belledune generation, whichever was lowest cost. HQ's price and the Grid price would normally be very close.

    The peak demand would be met by the above sources plus Colson Cove and/or combustion turbines ,depending on marginal costs.

    Given the current ENBP demands, generation and interconnection capacity, it is clear that the energy flows to the system will be essentially the same whether the system is owned by ENBP or by HQ. HQ will have no incentive to sell its hydro energy to NB at a lower rate than what it can receive from the Grid.

    With power rates in New England much higher than in NB, a prudent business case for HQ to upgrade its interconnection capacity and to dedicate new hydro generation capacity to NB will probably be sometime in the future.

Comments on the Proposed Deal:

1. HQ will pay $4.75b, or such sum as will retire ENBP's debt, at the time of closing (assuming a successful Pt.Lepreau startup). Determining a fair market value for an

electric utility requires a careful review of its assets, its earning potential, its intrinsic value to the purchaser and its future prospects. It would be unusual for the value of an operating utility to be only equal to its outstanding debt.

One ratio that is sometimes used is to compare the book value, after Depreciation, of Property, Plant and Equipment (PPE) to the Market Value. This can be done for publicly traded companies by using their Market Capitalization as Market Value.

The Market Cap/ PPE book value ratio for four utilities listed on the stock exchanges (AEP, Fortis, Emera and TransAlta), vary from 2.3 to 7.5 for an average of 4.2 times. At 4 times BV the value of ENBP would be over $14b. The net present value (NPV) of energy cost savings calculated by NERA is $5.6b. Assuming this is a valid evaluation, the cash value is $14b-$5.6 = $8.4b.

At $4.75b payment and assuming Pt.Lepreau completion adds another $1b to book value and that the Book Value of the retained assets are $1b, the price is 1.32 times ENBP's book value.

The Market Cap/PPE ratios apply to profit making utilities but New Brunswick has reaped the equivalent profit benefits as evidenced by the historic lower electricity rates. HQ will receive full value for these assets as noted below. The $4.75b is not sufficient payment for this value.

2. The benefits to HQ of expanding its system to include New Brunswick are clear:

    - They add an immediate 9.5 Twh/yr of Residential, Commercial and General load at a 39% increase in revenue over current Quebec rates.
    - They add an immediate 4.5 Twh/yr of Industrial load at their Quebec rates.
    - They have access to an additional 670 Mw tie to New England.
    - They are geographically situated to control all power interchange between Eastern Canada and the New England states.
    - They have access to 1436 Mw of efficient fossil fuel generating units for which they pay all fixed and incremental costs as long as they decide that they need them. HQ can elect at any time to shutdown or mothball these units after giving 12 months notice. Any residual book value of these assets would then be lost to GENCO.

These benefits clearly show that HQ will receive full value for ENBP's assets.

3. ENBP's Industrial Customers will be the immediate beneficiaries of a 32% reduction in power rates. The NERA report calculates the NPV of these savings to perpetuity at

   $2.1b.

4. The NERA report, which calculates the NPV of the future savings to perpetuity, is very difficult for the average New Brunswicker to evaluate. If the calculation is made on terms similar to a home mortgage, which everyone understands, the results may seem more relevant. Calculated on a 20 year basis at 6% interest the NPV of the residential rate payer's savings are as follows:

Average Monthly Bill	NPV of Savings	Equv. $/mo
$400.00/month	$7367	$30.69
$200.00/month	$3683	$15.35
$100.00/month	$1842	$7.67

   These calculations assume that ENBP must raise its rates by 3% per year for 5 years, that no increases occur to New Brunswick rate payers for decommissioning GENCO units, that there are no increases in energy demands and that inflation rates after 5 years would be equal for ENBP and HQ.

   The Atlantic Institute for Market Studies has published a paper by Mr. Gordon Weil entitled "An Analysis of the New Brunswick – Hydro Quebec MOU" which details the risks to the projected savings after the 5 year rate freeze. A review of this paper shows that the projected savings could be less than calculated.

   If NB ratepayers are concerned that the savings after 5 years may not materialize, the NPV should be calculated for the 5 year period only. The NPV of the savings would then become:

Average Monthly Bill	NPV of Savings for 5 years	Equiv. $/mo
$400.00/month	$1818	$30.30
$200.00/month	$909	$15.15
$100.00/month	$455	$7.58

5. With a firm power purchase agreement from HQ, EBNP could reap a part of these gains, HQ would increase its production by the same amounts and NB would not lose control.

When HQ was formed by nationalizing existing private utilities in the province it was to provide control over their destiny. "Maitres Chez Nous" was the slogan and it served them well. New Brunswick would be wise to maintain the same policy as it has served us well in the past.

6. As noted above, HQ will likely use Belledune as a base load unit and Coleson Cove for peaking or spinning reserve. Any residual value of these assets, after HQ requires that they be shut down, will be lost to GENCO because it would not have access to the grid without HQ's cooperation .

7. HQ's Annual Report shows a peak of 37,500Mw with about 36,500Mw generating capacity. They will require 1000 Mw of new capacity to supply NB and any exports from NB. After the 5 year freeze, NB rate payers will bear the higher costs of these new assets on any energy requirements over the 14 Twhr of the Heritage Pool.

8. PNB's financial position is not improved by paying down the ENBP debt and, at the same time, reducing its assets by a greater amount.

9. Some people in Quebec are less than satisfied with HQ's performance to date. See http://www.iedm.org/main/show_mediareleases_en.php?mediareleases_id=187

   Is this the firm New Brunswick wishes to entrust with its essential electric service?

10. The risks noted by the NERA report are normal utility risks which will be faced by most utilities in the north east. When the time comes, each issue will be evaluated and the optimum solution chosen to deliver lowest cost rates in accordance with normal utility practice. As a matter of interest, HQ has an ongoing refurbishment program for its older hydo generating stations similar to that anticipated for Mactaquac.

11. PNB says New Brunswick will still control its energy policy. This is easy when PNB owns 100% of the shares of ENBP. It will not be possible when the province owns 0% of the shares. The EUB will still review rate changes but it does not set policy.

12. PNB wishes to promote sustainability. Sustainability can only be achieved by increasing productive assets, not by selling them.

Conclusions:

1. The major benefit of the proposed sale is the immediate reduction to Industrial rate payers in New Brunswick who realize savings of about 32%.

2. Residential, General and Commercial customers will not see any reduction in rates. They must calculate what the rates would have been had the sale not been completed and consider the savings over time while assuming that many future unknowns do not eliminate some of the savings.

3. HQ realizes substantial benefits both financially and strategically.

4. The value of the ENBP assets to HQ is significantly greater than the outstanding ENBP debt. The rate relief to New Brunswickers does not cost HQ anything. Its gross margin on its NB business will be greater than for its Quebec business.

5. If the deal is concluded it should be at a higher cash value than the ENBP debt.

6. The major cost to NB will be loss of control of this essential service plus the loss of opportunity to take advantage of other sources of energy in the future such as the Lower Churchill developments. The value of retaining control is difficult to quantify. It is a matter of judgement for each citizen/shareholder of ENBP.

7. If the deal is not concluded New Brunswick rate payers will forego rate savings. The NPV of these savings, subject to risks as noted, are calculated to be as follows:

For Industtrial customers calculated to perpetuity (NERA)		$2.1 billion
For Residential Customer with a monthly power bill of $400/m		$7367 or $30.69/mo
(Calculated at 6% interest for 20 years)	$200/m	$3683 or $15.35/mo
	$100/m	$1842 or $7.67/mo

In the event that NB ratepayers believe that only 5 years of savings should be considered because of the many future uncertainties of the NPV, the projected savings would become:

Average Monthly Bill	NPV of Savings for 5 years	Equiv.$/mo
$400.00/month	$1818	$30.30/mo
$200.00/month	$909	$15.15/mo
$100.00/month	$455	$7.58/mo

Each New Brunswick consumer should be able to decide whether these savings are worth the loss of ownership of ENBP, its services and its assets.

8. PNB has stated that four objectives were the reason for pursuing this MOU with HQ.

The following is an assessment of whether the stated objectives would be met by this deal:

- "NB must continue to have control of its energy independence and its energy policies."

Comment: NB has those controls now because it owns 100% of EBNP. How can it claim to maintain control when it owns 0%. It cannot!

- "NB families and business must have rate relief."

  Comment: NB rate payers currently have the lowest rates in the Maritime Provinces and substantially lower than the New England states. Lower rates are always nice but why the imperative?

- "The debt must be slashed significantly or eliminated altogether."

  Comment: Lowering the ENBP debt while selling productive assets worth much more than the debt does not improve NB's financial position, it worsens it. The Provinces debt is not lowered at all.

- "Our dependence on fossil fuels must be lowered."

  Comment: There will be little or no difference in the use of fossil fuels in NB whether ENBP or HQ operate the system. HQ does not have the excess generating capacity, the interconnection capacity or the market incentive to replace all of NB's fossil fuel generation with hydro energy.

  It will probably be years before it will be in HQ's interest to expand its NB facilities.

9. A more desirable option would be to negotiate another long term firm power purchase agreement (PPA)with HQ . HQ may need some PPA's to obtain financing for new generation and additional interconnection capacity. The savings realized could be distributed to rate payers as necessary for the best economic outcomes. ENBP would remain as a productive asset of the people of New Brunswick.

   Another long term plan would be to develop a strategic partnership with a major electric energy producer and distributor with a proven track record in international developments such as Eletricite de France (EDF). In the 1970s EDF faced essentially the same issues as ENBP . Like ENBP EDF had few indigenous natural resources, but like ENBP was strategically located and could and did develop strong electrical interconnections with electric utilities in all neighbouring countries .

   EDF is now the "ENERGY HUB" of Europe. Nuclear energy accounts for 86% of France's electricity supply. Electricity is France's fourth largest export.

EDF has made major investments in generating and distribution utilities in the U.K and recently acquired a 49% interest in Constellation Energy (formerly Baltimore Gas and Electric) in the U.S.A.

With NB's strategic location for generating plants and interconnections to the U.S. market, a company like EDF would be a great partner in implementing Premier Graham's vision for NB as the "ENERGY HUB" of North Eastern America.