



*Revised version of*

# **Energizing New Brunswick Power:**

A Brighter Future for Consumers and Taxpayers

February 5, 1997

by

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This paper has been slightly modified from its original version after discussions with NB Power. None of the changes, however, reflected on the substance of the argument, documentation or analysis contained in the original version. For further information, refer to the AIMS media release of *February 5, 1997*.

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# **Energizing New Brunswick Power:**

A Brighter Future for Consumers and Taxpayers

February 5, 1997

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The Atlantic Institute for Market Studies (AIMS), is an independent, non-partisan, social and economic policy think tank based in Halifax. The Institute was founded by a group of Atlantic Canadians concerned to broaden the debate about the realistic options available to build our economy.

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The Institute's chief objectives include:

- a) initiating and conducting research identifying current and emerging economic and public policy issues facing Atlantic Canadians and Canadians more generally, including research into the economic and social characteristics and potentials of Atlantic Canada and its four constituent provinces;
- b) investigating and analysing the full range of options for public and private sector responses to the issues identified and to act as a catalyst for informed debate on those options, with a particular focus on strategies for overcoming Atlantic Canada's economic challenges in terms of regional disparities;
- c) communicating the conclusions of its research to a regional and national audience in a clear, non-partisan way;
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## About the Author

Thomas Adams represents the environmental and consumer advocacy organization, Energy Probe, as Executive Director. He also works for the consulting firm Borealis Energy Research Association. Energy Probe is a charitable organization that promotes conservation, environmental sustainability, democratic decision-making processes, and economic efficiency for Canada's energy sectors.

Mr. Adams specializes in environmental and economic analysis of the electricity and natural gas sectors. His research interests include incentive regulation for natural monopolies, competition and privatization options for electric power utilities, economic principles for energy conservation policy, and expansion of natural gas deregulation. He has made many presentations to regulatory proceedings, academic fora, and industry conferences. He has a bachelor of science degree and a master's degree in environmental studies.

He is the author of the AIMS study, "New Brunswick's Power Failure: Choosing a Competitive Alternative", presented to the New Brunswick Legislative Assembly Standing Committee on Crown Corporations, 9 October 1996.

The author of this report has worked independently and is solely responsible for the views presented here. The opinions expressed are not necessarily those of the Atlantic Institute for Market Studies, its Directors, or Supporters.

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## Executive Summary

The substantive issues addressed in this study are NB Power's submissions to the New Brunswick Legislative Assembly Standing Committee on Crown Corporations (the Committee), new developments with a bearing on New Brunswick's energy choices that have arisen since the publication of the AIMS study "New Brunswick's Power Failure: Choosing a Competitive Alternative" October 10, 1996, and some minor corrections to the original AIMS report. The overall theme of this report is that new approaches, a wider perspective, and a higher standard of accountability are required if ratepayers are to be better served and taxpayers adequately protected.

NB Power, beset by an ongoing financial and operational crisis, has responded to criticisms, such as those in the AIMS study presented to the Legislative Assembly Standing Committee on Crown Corporations on October 9, 1996, in a defensive and dismissive spirit. Rather than attempting to learn and benefit from the range of analysis presented to the Committee, the utility instead opposed most suggested reforms. The utility responded to the many of the criticisms with incorrect assertions and incomplete information that may have created confusion among members of the legislature and the public.

NB Power's public statements regarding its generation reserve do not accurately represent the utility's excess capacity. The utility presented its long term planning reserve requirements, which should be relatively large, as its short term capacity reserve, which should be relatively small. The utility's public reserve calculations did not make accommodation for non-firm sales, although such accommodations are required by technical committees overseeing power reliability in North America and are appropriate. Further, the utility's public statements confused its total reserve capacity with its excess reserve capacity, again with the effect of understating the amount of its excess capacity. In future, information relevant to reserve requirements should be public and the utility's calculations of its reserve margin should follow accepted technical standards.

On October 15, 1996, NB Power announced its decision to cutback employment at NB Coal and to discontinue use of some production facilities. Contrary to NB Power's public statements, NB Coal will not now produce coal at a cost competitive with alternative fuel sources. By NB Power's own admission, domestic coal produced for the Belledune station will be more costly on an incremental basis than the all-inclusive cost of imported coal. NB Power's analytical approach incorrectly treated the inefficiency of the small, old, and remotely located Grand Lake coal-fired station as a benefit to NB Coal. Another error in NB Power's approach was its decision to treat the rate of production from NB Coal as fixed. Reduced coal production would reduce losses. Both NB Coal and the Grand Lake station should be privatized or closed.

Both Civic Hydro and NB Power have attempted to justify Civic Hydro's 1995 failure to explore competitive market prices for Saint John power users. Civic Hydro incorrectly characterized both the nature of its 1995 opportunity to shop for power and the advice it received from its consultant about rate benefits for users. NB Power produced figures designed to show that the price Civic Hydro will pay in future will be competitive, but these figures rely on inappropriate assumptions.

The city of Edmundston is not currently bound by a long term contract with NB Power, and now is paying a higher rate than Civic Hydro. Edmundston should aggressively pursue competitive market purchase options.

Contrary to NB Power's assurances that its debt level is normal, its debt is much higher than that of the three most comparable utilities in Canada. Relative to the size of New Brunswick's economy, the stated liabilities of its electricity sector are more than 50 percent above those in Nova Scotia, more than twice those in Ontario, and almost three times those of Saskatchewan. In light of NB Power's recent negative net income (after eliminating the effect of accounting changes) and prospect of continuing cost pressures, such as those resulting from the problems at Point Lepreau, it appears unlikely that the utility will be able to hold its rate increase in 1997 to 2.9 percent as it has planned.

Quebec's initiative to begin to open its power system to normal commercial trading holds the promise of widespread benefits. The government of New Brunswick should follow the lead of the government of Quebec and commit to opening its transmission system to independent electricity trading. However, New Brunswick should avoid the weaknesses of the new Hydro-Québec transmission tariff, particularly its allowance of only electricity exports, its rate structure which does not value the timing or location of use of the transmission system, and its rate level which appears to be calculated on the basis of the high average cost of the existing transmission system in Quebec. With the prospect of Sable Island natural gas becoming available in New Brunswick, the government must make choices about the structure of the gas distribution industry. The horizontally integrated Quebec model of a combined gas and electric monopoly would lessen interfuel competition and is undesirable.

The reason that NB Power is in an operational crisis is that its 14 year old Point Lepreau nuclear station is aging badly, performing very poorly in 1995 and 1996. As the utility's largest and most expensive station and, when it produced at a high level, its largest source of electricity by a wide margin, the ongoing weakness of the station undermines the entire utility. In December, the Atomic Energy Control Board, the federal nuclear regulator, raised concerns about poor work standards in the station's ongoing operations and imposed strict new conditions on the utility. So far, operational problems at Point Lepreau have not reduced service reliability to firm customers. However, the government of New Brunswick should assess contingencies for ensuring reliability in the event that Point Lepreau's output remains far below forecast. The government should also assess the life expectancy of the station with a view to planning for its early closure.

The management on NB Power professes comfort with utility's current financial and operational situation. Management's failure to publicly recognize the utility's problems suggests that solutions will not come from within the utility but from outside agencies. Government and the public at large will have to take the initiative. Privatization coupled with the introduction of competition holds the promise of benefits for both taxpayers and ratepayers.

NB Power identified two errors in the first AIMS study. NB Power identified an error in my calculation of the fuel cost component of the operating loss at Point Lepreau in 1995, the

correction of which reduces my estimate of the loss from \$40 million to \$38 million without counting the costs of incremental capital expenditures in 1995. NB Power also identified an error in my estimate of its reserve capacity in 1995, the correction of which reduces my estimate from 46% to 30% total reserve without taking account of non-firm sales. These objections are not significant enough to lead to a revision of any of the original study's conclusions.

## Summary of Recommendations

1. NB Power's short-term and long-term generation reserve requirements and excess capacity should be included in its business plans along with all supporting data and calculated according to NPCC requirements. 6
2. Given newly released and discovered information about the deteriorated condition of Point Lepreau, NB Power should produce and publish detailed information on contingencies to maintain reliability in the event that the station continues to operate well below the forecast level of production or becomes inoperable prematurely. 6
3. NB Coal and the Grand Lake coal-fired station should be privatized or closed. 8
4. The city of Edmundston should aggressively pursue competitive power purchase options. 11
5. The government of New Brunswick should follow the lead of the government of Quebec and commit to opening its transmission system to independent electricity trading. However, many specific elements of Quebec's new transmission bylaw should be reconsidered. 18
6. The electric power industry in New Brunswick should remain institutionally separate from the future natural gas pipeline and distribution industry in the province to maximize the interfuel competition between energy forms. 20
7. The government of New Brunswick should make a careful assessment of the life expectancy of the Point Lepreau station with a view to planning for its early closure, taking account of public input, technical assessments, and economic evaluations. 23

# Introduction

This report's primary purpose is to analyse the official submissions of the New Brunswick Power Corporation (NB Power) to the New Brunswick Legislative Assembly Standing Committee on Crown Corporations (the Committee) regarding the utility's 1996-2001 business plan and to analyse the utility's public response to other presentations received by the Committee, particularly the AIMS study "New Brunswick's Power Failure: Choosing a Competitive Alternative" presented October 10, 1996. The secondary purpose of this report is to provide information to supplement the first AIMS study on NB Power regarding the utility's finances and operations, to analyse energy policy developments in Québec that bear on New Brunswick, and to correct some minor errors in the original AIMS report.

The October 1996 AIMS study on NB Power and its business plans identified a number of risks to the utility, including declining sales due to competition from natural gas and potential shortfall in production from the Point Lepreau nuclear station. The study characterized NB Power's wholesale rates as too high, its accounts as partial reports of actual costs, and its operational and capital spending out of control. The study recommended a broad restructuring of New Brunswick's monopoly-based electricity system. According to the model advanced in the study, the utility would be structurally separated into separate entities: power generation and marketing would be conducted in an open, competitive market designed to facilitate customer choice, while transmission, distribution and system dispatch would be separated structurally from competitive functions and would be subject to regulation. Privatization would proceed incrementally, with a view to maximizing long-term value for the public of New Brunswick. In the meantime, capital spending would be sharply curtailed or eliminated, NB Coal would be privatized, and NB Power's accounts and capital spending would be subject to ongoing, independent, and public review by the Public Utilities Board.

A defensive and dismissive spirit, rather than an open-minded attitude, has pervaded the utility's response to the criticisms directed at it by presenters to the Committee. Newly appointed NB Power president James Hankinson suggested that most of the advice in the submissions should be ignored and, specifically regarding the AIMS study, told the Committee:

In terms of how we combat (the AIMS study), the most effective weapon we have found so far has been the facts. I am not sure what we have read has been factual; indeed, it has been quite misleading and quite sensational and upsetting to our employees, and it does not serve the interest of NB Power, the government, or the province of New Brunswick.<sup>1</sup>

The apparent purpose of the utility's reaction has been to paper over its problems in order to reassure the legislature and the public. As detailed later, although some of NB Power's reply

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<sup>1</sup>Hansard, Crown Corporations, October 29, 1996, p. 13.

arguments are substantive and bona fide, many have relied upon incomplete information. As a result, there is a risk that the public and legislature of New Brunswick could form inaccurate impressions about the status of the utility, some key technical aspects of its business plans, and the overall quality of its management. Future inquiries, such as the one undertaken by the Standing Committee on Crown Corporations during the fall of 1996, should utilize active, independent legal and technical assistance during the proceeding, in a fashion similar to the work performed by the staff of many public utility commissions in Canada.

As noted in my original report, NB Power continues to restrict access to information about the utility. My unsuccessful attempts to procure data necessary to analyse comments made by the utility related to the power contract with Civic Hydro of Saint John are documented in Appendix A. In areas including nuclear fuel cost and the announced changes to NB Coal, the utility was more forthcoming in response to specific cost and operational information requests.

## **Competitive Pressures Building to Open New Brunswick's Power Market**

With the dramatic late October announcement by the Quebec government of its intention to allow independent suppliers to export power using Hydro-Québec's transmission system, electricity market liberalization trends have advanced further since the submission of my original AIMS report. In the face of building competitive pressures, NB Power's attitude of "just say no" to carrying power or to "wheel" for customers inside and outside the province is becoming less tenable. Adjustments to New Brunswick's power system to accommodate open competition and to benefit customers would benefit from a new attitude of openness by utility officials.

Officialdom in New Brunswick now appears split with both the Standing Committee on Crown Corporations taking positions in support of reform, and the utility taking positions resisting most reform suggestions.<sup>2</sup> The report of the Standing Committee on Crown Corporations, presented to the Legislature December 19, supported strengthened public oversight of the utility, tougher accounting standards, better environmental reporting, and a value-for-money audit by the provincial Auditor General of NB Power's operating and maintenance expenses. In addition, the Committee noted and decried the utility's tendency to use unduly optimistic financial and operational planning assumptions. The key recommendation of the Committee focused on competition.

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<sup>2</sup>NB Power officials have indicated acceptance to some of the reform suggestions presented to the Committee. Specifically in reply to the AIMS presentation, NB Power officials indicated to the Committee that they agreed on the need to sharply reduce capital spending (Hansard, Crown Corporations, October 29, 1996, p. 75). The officials agree that there is "certainly logic" to my suggestion that nuclear waste disposal provisions be funded with cash rather than just account entries as is currently done (Hansard, Crown Corporations, October 30, 1996, p. 5). Regarding my recommendation that rates be restructured into three parts with customers charged separately for hook-up costs, usage of power at the peak time, and another charge for electricity usage at all times, NB Power said "ideally, our rates could have been structured that way" (Hansard, Crown Corporations, October 30, 1996, p. 7).

Your Committee recommends that the next Business Plan have as a major focus a thorough discussion of the trend toward a deregulated or competitive industry. This [includes] an update on developments in both Canada and the U.S., and how this impacts NB Power in terms of trade interprovincially as well as future exports. Also, to provide an outline of what NB Power has done and proposes to do in the future in order to respond to this trend, what benefits and risks are involved, and what steps must be taken to effectively implement elements of electricity competition in the province.

The Committee has focused the agenda of future discussions on New Brunswick's electricity system on competition. As one of the largest economic enterprises in Maritimes, NB Power is critical to the welfare of all New Brunswickers and has significant influence on those living elsewhere in the region. The economic condition of New Brunswick in the future will hinge to a significant degree upon whether market-opening reforms can be introduced in the province's power system.

## Chapter 1 **NB Power's Generation Reserve Capacity**

NB Power's public statements regarding its generation reserve do not provide an accurate perspective of the utility's excess capacity. Generation reserve capacity is necessary to maintain reliability of service but excess reserve capacity beyond that needed to maintain reliability imposes undue costs on customers. NB Power has significant excess capacity resulting from its megaproject building spree during the 1990s.

My first report calculated NB Power's 1995 total capacity reserve to be greater than 46 percent. The utility correctly pointed out that this figure should have been adjusted to reflect existing capacity committed to sales outside the province. The effect of the adjustment is a total capacity reserve of greater than 30 percent. It is important to note that a major portion of the externally committed capacity is expected to return to NB Power's responsibility over the next five years.<sup>3</sup>

As noted in the first report, the 1995 total capacity reserve figure should be increased to reflect the capacity available through curtailable and interruptible sales. NB Power has refused repeated requests to provide the current volume of capacity available to the system from curtailable and interruptible sales. Most utilities routinely provide information on the extent of their capacity interruptible loads. According to Statistics Canada data for 1994-95, NB Power's curtailable domestic load was 65 MW and its non-firm sales to the US at the time of peak was 75 MW.<sup>4</sup> Therefore, in 1995 NB Power's total capacity reserve was 37 percent.

In responding to my criticism of its current excess capacity, NB Power made frequent references to Northeast Power Coordinating Committee (NPCC) requirements on NB Power for reserve capacity. However, in relying on NPCC requirements, the utility incorrectly used the NPCC's 10-year long-term capacity reserve criteria, which requires a 20 percent reserve, as if it was the short-term reserve requirement.<sup>5</sup> For a well-managed utility, the short-term reserve should about half the long-term requirement. The large size of the Point Lepreau station relative to the size of the province's entire power system creates special problems for the utility's management of its short term reserve. For well-managed utilities, the reason that short-term reserve should about

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<sup>3</sup>100 MW of combustion turbine capacity at Millbank returns to NB Power from Hydro-Québec in 1998 and another 100 MW is returned in the same manner in 2002.

<sup>4</sup>This data is from StatsCan Catalogue 57-204.

<sup>5</sup>NB Power's testimony to the Crown Corporations Committee on its reserve capacity, particularly the reliance on the NPCC 20 percent reserve requirement, was presented by Carl Flynn (see Hansard, Crown Corporations, October 29, 1996 pp. 75-78). Mr. Flynn confirmed in a telephone conversation December 18 that the 20 percent requirement was the long-term criteria.

half the long-term reserve is that the long-term reserve is subject to greater uncertainty. For example, demand forecasts can be inaccurate. In addition, some facilities included in the long-term reserve calculation may not currently be in service and intervening events can prevent those facility development plans from being realized. Applying the long-term planning criteria to the utility's current reserve condition, as NB Power has done, understates the degree of its excess capacity. The difference between the long-term and short-term criteria for a well-managed utility the size of NB Power is roughly equal to a station with the capacity of the \$1 billion Belledune coal station being needed 10 years from now instead of being needed today.

Another error in the utility's statements about reserve capacity to the Committee and to the public is that the utility has failed to subtract from its net sales the capacity available through curtailable and interruptible sales, in effect treating non-firm sales as firm. This is an unusual oversight for the utility to make in light of the fact that in its ongoing dealings with the NPCC regarding reserve requirements, capacity available through curtailable and interruptible sales is routinely deducted from net sales. As noted above, the volume of non-firm sales in 1994-1995 was 140 MW.

Another error in the utility's statement about its reserve is that the utility confused total reserve (the amount of available capacity in excess of firm consumption requirements used at the time of the winter peak) with excess reserve (the amount of available capacity in excess of amount required to maintain reliability). By definition, excess reserve is always a smaller quantity than total reserve. In his presentation to the Committee, Carl Flynn, a vice president of NB Power, dismissed my claim that NB Power has vast, unneeded surplus capacity by comparing my calculation of its total reserve, some of which my report recognized as necessary to maintain reliability, with the utility's calculation of its excess capacity. NB Power claims its excess capacity to be 6 percent of total capacity or 200 MW.<sup>6</sup> Comparing total reserve capacity with excess reserve capacity exaggerates the difference in the numbers for rhetorical effect but is a misleading apples-to-oranges comparison.

If properly calculated, rather than having a current capacity excess of 200 MW as the utility claims, the actual figure is approximately 500 MW.<sup>7</sup>

Many representatives of NB Power and other supporters, such as current government house leader and former utility chairman Raymond Frenette, defend the decision to build excess facilities, particularly Belledune, to act as backup if the Point Lepreau nuclear station continues

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<sup>6</sup>See comments by Carl Flynn, Hansard, Crown Corporations, October 29, 1996, p. 75. The same point was repeated by James Hankinson in "Power Points" in the *New Brunswick Telegraph-Journal*, November 9, 1996.

<sup>7</sup>This figure is calculated by subtracting the sum of 10 minute and 30 minute reserve requirements for NB Power calculated according to NPCC requirements and using StatsCan data for interruptible sales from the StatsCan report of NB Power's excess capacity over net peak sales. The resulting calculation is 958 MW - 440 MW = 518 MW.

to produce poorly.<sup>8</sup> This position suggests a low level of official confidence in future production from Point Lepreau, a view that ongoing developments at the station substantiate. However, the view overlooks options to maintain reliability that are much less expensive than the vastly over-priced Belledune station.

NB Power's generation reserve should take special account of the Point Lepreau station, in light of the accelerated aging of the station and the station's large size relative to New Brunswick's power requirements. The cheapest means of achieving reliability requirements are through curtailable and interruptible sales and other demand-sensitive marketing approaches. Another inexpensive means of achieving reliability requirements is to use contracts to share reserve requirements with neighbouring utilities. NB Power's business plans provide scanty information on both of these approaches to managing reserve requirements. Once all demand-based and reserve-sharing options for providing backup for Point Lepreau have been exhausted, reserve requirements should be met using stations, like the Millbank combustion turbine station, that have relatively low capital costs. Given newly released and newly discovered information about the deteriorated condition of Point Lepreau, NB Power should produce and publish detailed information on contingencies to maintain reliability in the event that the station continues to operate well below the forecast level of production or becomes inoperable prematurely.

#### **Recommendations:**

- 1. NB Power's short-term and long-term generation reserve requirements and excess capacity should be included in its business plans along with all supporting data and calculated according to NPCC requirements.**
- 2. Given newly released and discovered information about the deteriorated condition of Point Lepreau, NB Power should produce and publish detailed information on contingencies to maintain reliability in the event that the station continues to operate well below the forecast level of production or becomes inoperable prematurely.**

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<sup>8</sup>See "Frenette defends Belledune 'mistake': Without it, we might 'freeze in the dark' ex-NB Power chief tells critics", New Brunswick *Telegraph-Journal*, October 10, 1996.

## Chapter 2 **NB Coal: Rationalization Scratches the Surface**

On October 15, 1996, NB Power announced cutbacks to employment at NB Coal and its decision to discontinue use of some production facilities. In his testimony to the Committee, Mr. Hankinson indicated that NB Coal would now produce coal on a “competitive basis with alternative fuel sources” and that it is “viable”.<sup>9</sup>

Mr. Hankinson pointed out that NB Power’s assessment of NB Coal ignores its overhead costs. Mr. Flynn later indicated that NB Coal’s overhead costs are \$9.4 million per year.<sup>10</sup> It appears very unlikely that any of NB Coal’s annual overhead costs will be recovered. While it is appropriate for NB Power to make operating decisions on the basis of marginal or incremental cost, the ongoing failure to recover NB Coal’s capital costs should be an acute concern. The announced cost reductions are moving in the right direction but will only lower the rate at which NB Coal is losing money by \$4 million per year.

NB Power used three irrational analytical methods to evaluate the benefits of continuing production at NB Coal, all of which bias the result to showing false benefits. First, the utility determined the value of domestic production relative to the average avoided cost of coal consumed at the Belledune and Grand Lake stations. By NB Power’s own estimate, based on incremental costs only and ignoring capital costs, NB Coal will lose money on displacement of imported coal at Belledune. The use of cost averaging implies that NB Power approves of a situation where its customers must pay above competitive market costs for some of the fuel used at Belledune. Rather than relying on average costs to make decisions and test viability, NB Power should be ensuring that each individual aspect of its operation is viable first on a marginal cost basis and second on a fully allocated cost basis.

A second analytical error was NB Power’s apparent failure to consider the future of NB Coal in concert with the future of the Grand Lake station. The apparent benefits of continued production by NB Coal are artificially boosted by the apparently high cost of imported coal at Grand Lake. The Grand Lake station is a tiny, obsolete coal station dedicated to burning domestic coal. The station takes delivery of 150,000 tons of NB Coal’s product per year, which is half of NB Coal’s output. The operating capacity of the station is currently 57 MW. Three units at Grand Lake with a total capacity of 25 MW were removed from service in 1993/94. The youngest unit at the station was brought into service in 1963 and will reach the end of its depreciation period in six years. It is the smallest grid-connected thermal station in New Brunswick and one of the smallest in Canada. Continued operation of Grand Lake offers little value in light of NB Power’s excess generating capacity discussed previously. Despite its small size, Grand Lake produces over 25 percent of NB Power’s acid rain-forming SO<sub>2</sub> emissions due to the extremely high sulfur content

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<sup>9</sup>Hansard, Crown Corporations, October 29, 1996, p. 3.

<sup>10</sup>Hansard, Crown Corporations, October 29, 1996, p. 3, 32.

of NB Coal's product and to the absence of environmental controls at the station. The avoided cost of imported coal at Grand Lake is a meaningless figure to use in evaluating NB Coal's viability because the small size and remote siting of the facility makes imported coal costs at Grand Lake inherently uncompetitive. NB Power's analytical approach treats the inefficiency of the Grand Lake station perversely as a benefit to NB Coal. A business-like analytical approach to identifying a break-even cost target for NB Coal would be to identify price fuel at Grand Lake that would make the station worth operating.

A third analytical error results from the utility's decision to treat the production rate from NB Coal as fixed. The utility admits that it could have reduced losses further by reducing production facilities further at NB Coal.<sup>11</sup> NB Coal will be using two draglines to produce 300,000 tons per year. Cutting the least efficient dragline but changing no other practice would cut production to 200,000 tons per year but should reduce costs by a greater amount, thereby reducing the losses in the operation.

After the announced restructuring of operations at NB Coal, the subsidiary will continue to lose money on all of its operations, by NB Power's own estimate. Efficient rationalization of NB Coal and Grand Lake, in the interest of all NB Power customers, appears to have taken a back seat. Mounting competitive pressures on NB Power should result in a correspondingly intensified examination of inefficient operations. NB Coal is apparently being sustained to serve social policy and political objectives in the Minto-Chipman area. All of NB Power's loss-making operations, which are a drain on all New Brunswickers, must be re-evaluated. Privatization or shutdown of the inefficient operations continue to be options, which NB Power appears not to be considering.

**Recommendation:**

- 3. NB Coal and the Grand Lake coal-fired station should be privatized or closed.**

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<sup>11</sup>During a telephone discussion with the author on October 16, 1996 regarding reduced coal costs, Mr. Flynn indicated that NB Power could have saved more by reducing production from two draglines to one but instead the utility decided "to reflect wider concerns" in their decision.

## Chapter 3 **Power Rates for Saint John and Edmundston Municipal Utilities**

NB Power has objected to the claim that it is overcharging its New Brunswick utility customers, Saint John and Edmundston, relative to the price a competitive market would charge.

My original report criticized Civic Hydro's decision to not pursue a competitive bidding process to identify lower power costs, although it had prepared to do so by drafting a request for proposals. The request for proposals was never published. Instead, Civic Hydro signed a ten-year supply contract with NB Power.

My original assessment of that arrangement failed to note that Civic Hydro contractually tied itself to NB Power's cost of service. Civic Hydro's failure to seek competitive supplies was compounded by a decision to tie its interests to an unstable index—NB Power's declared costs. Accounting changes like those recommended by Dr. Norman Betts of the Faculty of Administration at the University of New Brunswick, Dominion Bond Rating Service, Mr. Hugh Tidby of firm Coopers and Lybrand,<sup>12</sup> the Committee in its most recent report, and myself could dramatically increase the recognized cost of service. An increase in the recognized cost of service would not necessarily impact rates for NB Power's in-province non-utility customers, but Civic Hydro could be damaged by such a change unless the contract was changed. The General Manager of Civic Hydro, Richard Burpee, indicated that Civic Hydro had not considered the implications for customers in Saint John of NB Power changing its accounts to recognize additional costs not now included in the cost of service.<sup>13</sup>

In an attempt to address the claim that the management of Civic Hydro behaved inappropriately and that Civic Hydro is paying too much for power, both Civic Hydro and NB Power produced public statements. Civic Hydro delivered a statement to its customers as an insert with their December 1996 bills, claiming that there were many barriers that made competitive purchase in 1995 unattractive, including changes to transmission facilities and potential legal impediments. This claim overlooks the approach adopted in the original Civic Hydro request for proposals, under which the power supplier would accept responsibility for solving all these problems at their own expense. Civic Hydro's insert claims that "The U.S.-based consultant hired to assist us in exploring alternative power sources was unable to assure us beyond reasonable doubt that we could obtain lower rates for our customers." However, the utility's former consultant, Gordon

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<sup>12</sup>Mr. Tidby represented Coopers and Lybrand when it was engaged by the Crown Corporations Committee in 1994 to review and comment on NB Power's accounting practices.

<sup>13</sup>Richard Burpee, personal communication, October 9, 1996.

Weil, has publicly stated that the competitive market could have reduced power costs for customers in Saint John by many millions of dollars.<sup>14</sup>

NB Power produced a page of rate assumptions and a graph showing the results of some undocumented calculations dated October 17, 1996 and provided them to the New Brunswick *Telegraph-Journal*. NB Power later referred to this material in its presentation to the Committee in an apparent attempt to defend the Civic Hydro contract.<sup>15</sup> As the correspondence attached at Appendix A indicates, NB Power refused to answer my questions about the calculations.

Based on the utility's presentation to the Committee regarding the Civic Hydro rate comparison and information publicly available, it is possible to identify a number of deficiencies in NB Power's assessment. The comparator to the Civic Hydro deal used by NB Power is Madison, Maine's competitive deal signed in 1994. No adjustments were made to reflect dropping market prices between the respective conclusion of the Madison deal in 1994 and Civic Hydro deal in 1995.

The "Total Charge" for Madison is calculated by NB Power as 6.1 cents (CND) without transmission in the first year. This figure appears to be too high. Based on the demand and energy charges shown and assuming a 30/70 peak/off-peak split and a normal load shape, I calculate the initial charge for Madison to be approximately 5.4 cents (CND). Independent electricity trade press reports from 1994 of the Madison deal confirm that figure as the "landed" costs in Madison.

A 1.15 cents/kWh transmission charge was calculated for Civic Hydro by NB Power. Independent trade press reports of the Madison deal indicated that Central Maine Power will earn a wheeling charge of \$1 million (US) per annum. Assuming a 70 percent load factor (the ratio between actual usage and conceptual usage assuming steady usage at the peak rate), the resulting wheeling charge would be less than 0.5 cents/kWh (CND). This figure is comparable to other wheeling charges in the United States. NB Power did not account for the fact that Civic Hydro has a load five times the size of Madison, thereby providing an opportunity for a volume discount for wheeling.

The "annual escalation" NB Power used for Civic Hydro's cost was based on NB Power's anticipated rate increases and did not account for potential accounting changes.

Together, these deficiencies make NB Power's assessment of the Civic Hydro deal unreliable. The value of NB Power's after-the-fact calculation of the benefits of the deal to customers in Saint John is made moot by Civic Hydro's failure to test those benefits by seeking a competitive alternative.

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<sup>14</sup>See for example, New Brunswick *Telegraph-Journal*, "What NB Power did was simply bamboozle them': American energy consultant has strong words for our Crown power utility", October 26, 1996.

<sup>15</sup>Hansard, Crown Corporations, October 29, 1996, pp. 64-65.

The municipal utility serving the city of Edmundston is not currently bound by a long term contract with NB Power and currently pays higher rates than Civic Hydro. If NB Power is confident that its wholesale rates are competitive, NB Power should allow Edmundston to fully explore the potential for competitive purchase without any kind of anti-competitive interference or impediment, including transmission access on equal terms to that provided to NB Power's own generating and transformer stations.

NB Power is continuing to offer Edmundston incentives to sign a long-term contract. Wisely, the leaders of Edmundston have chosen to keep their power options open. The potential loss of Edmundston's business is one of the most effective forces making NB Power accountable for its spending and efficiency. However, due to the small size of Edmundston's requirements, loss of NB Power's margin on those sales, though a significant commercial loss, could easily be made up with other efficiency gains elsewhere in the organization. Edmundston's opportunity to test the competitive market remains the best chance all New Brunswickers have in the near term to gain a benchmark against which to measure NB Power's efficiency.

**Recommendation:**

- 4. The city of Edmundston should aggressively pursue competitive power purchase options.**

## Chapter 4 NB Power's Financial Position

In NB Power's fiscal 1995-96 annual report, recently retired president and chief executive officer Lin Titus describes the utility's current financial position as "healthy" and adds "we have a debt load that is typical of our industry".<sup>16</sup> The utility's new president, James Hankinson, has publicly described the utility as "well managed" and its financial position as "stable".<sup>17</sup>

The following chart compares NB Power's debt with that of the most comparable utilities in Canada. All the utilities listed rely on a variety of power generation sources with most requirements being met from thermal sources, both fossil and nuclear.

Table 1: Comparative Electricity Customer-Borne Capital Burdens

Item (1995 data unless otherwise indicated)	NB Power*	NS Power	Ontario Hydro	SaskPower
long-term debt (\$ billion)**	3.302	1.6347	31.430	1.877
equity (\$ billion)***		1.0362		
nuclear waste disposal and decommissioning (\$ billion)	.159		2.419	
total long-term liability (\$ billion)	3.461	2.6709	33.849	1.877
Provincial population (millions)	0.7601	0.9378	11.1003	1.0156
Provincial GDP (\$ million)	15,833	18,760	315,069	24,281
\$ electricity liability/person	\$4,553.35	\$2,848.05	\$3,049.38	\$1,848.17
\$ electricity liability/\$ GDP	0.219	0.142	0.107	0.077

\* NB Power data is for the fiscal year ending in April 1996.

\*\* Long-term debt here includes the current portion of long-term debt.

\*\*\* Equity is included for NS Power since the cost of equity is part of the capital burden borne by customers.

As this chart indicates, relative to the size of New Brunswick's economy, the stated liabilities of the electricity sector are more than 50 percent above those in Nova Scotia, more than twice those in Ontario, and almost three times those of Saskatchewan. By this measure, it is incorrect to claim that NB Power's debt load is typical of the industry. NB Power's debt is atypically high for a vertically integrated utility primarily reliant on thermal power sources.

<sup>16</sup>1995-96 NB Power Annual Report, p. 6.

<sup>17</sup>New Brunswick *Telegraph-Journal*, "Power Points", November 9, 1996.

As NB Power officials admitted to the Committee, its net income is negative after removing the effect of one-time accounting changes. NB Power is the only utility in Canada with a negative net income.

A September 1996 report by Lehman Brothers, pointing to NB Power's high debt level relative to other utilities, observed that competition in the electricity market would be difficult for the utility. "One of the main challenges facing New Brunswick Power, and consequently the province, over the medium term is the prospect of deregulation in the utilities industry. Debt levels at the provincial utility are relatively high (debt to total capitalization is currently about 88 percent), primarily as a result of the construction of the Belledune coal-fired generating plant and other major capital projects."<sup>18</sup>

The Committee raised a pointed concern regarding NB Power's debt reduction plan and the assumptions that plan is based on. It recommended that utility use "a conservative set of values as a base case for all uncontrollable variables, versus the current practice of utilizing overly optimistic values for some key inputs. This would ensure that the projected net improvement in cash flow and subsequent debt reduction have an increased probability of actually being achieved."

NB Power's current debt reduction plan is to reduce debt by \$750 million or by 20 percent in five years. This implies a base debt of \$3.75 billion, which in turn implies that the \$750 million reduction is not relative to current debt but relative to what debt might otherwise exist in the year 2001. The planned debt reduction is almost entirely reliant on accumulated depreciation, with little or no book equity being created for the utility's owners, the people of New Brunswick. The implication of the utility's own business plan is that putting off privatization will not increase net proceeds for New Brunswickers.

Mr. Hankinson has made frequent references to the Dominion Bond Rating Service (DBRS) study issued in late October, the day before NB Power's second appearance before the Committee.<sup>19</sup> The recent DBRS study paints a generally less pessimistic view of the utility than in its previous report. The first most important strength DBRS identified in NB Power is its right, unique in Canada, to raise rates by less than 3 percent per year without regulatory scrutiny. The DBRS study conclusions derive from the debt rater's focus on debt service ability rather than a wider efficiency-oriented perspective. The feature of NB Power that most comforts the debt rater should be of little comfort to its customers.

NB Power's defensive and negative reaction to the announcement of electricity market liberalization in Quebec contradicts the repeated assurances from the utility that it is in good shape and ready to participate in an open market. NB Power's statements on Quebec's initiative have relied on pronouns that confuse their meaning. Mr. Hankinson told the Committee, "If we

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<sup>18</sup>Lehman Brothers, "Yankee Market Investor, Canadian Edition", September 18, 1996, pp. 52-53.

<sup>19</sup>Hansard, Crown Corporations, October 29, 1996, p. 4, 26.

opened up access to Quebec to allow [other power producers] to wheel power through New Brunswick, we could be worse off unless we're careful how we protect our interests." Apparently, the interests he is referring to are not those of customers, but of the monopoly itself. Mr. Hankinson added, "Now others want to come along and use [our transmission facilities] for their benefit." The benefits this statement appears to refer to are benefits that producers and consumers might share between themselves.

In NB Power's fiscal year ending March 31, 1997, the utility will credit to its income \$35.1 million from money previously set aside as a provision for nuclear fuel channel removal. It will also credit to its income \$32.9 million previously set aside in its generation equalization account. Together these adjustments correspond to a one year rate increase of about 8%. With these adjustments and a continuation of its widely criticized cost deferral practices, such as capitalizing interest and depreciation on plants under planned and forced outages and continuing to carry costs related to a conceptual additional unit at Belledune as if it is construction work in progress, it may be possible for the utility to continue to claim that it is making a positive net income in its next financial statement. However, in the fiscal year starting April 1, 1997, the generation equalization account will be exhausted and only \$21.9 million will be credited to income from money previously set aside as a provision for nuclear fuel channel removal. In light of recent negative net income (after eliminating the effect of accounting changes) and prospect of continuing cost pressures, such as the problems at Point Lepreau, it appears unlikely that NB Power will be able to hold its rate increase in 1997 to 2.9 percent as it has planned.

## Chapter 5 **Energy Policy Developments in Quebec**

The purpose of this chapter is to briefly analyse the two major initiatives of the government of Quebec announced since the publication of the first AIMS study on NB Power—the publication of a provincial government bylaw creating a limited system of transmission service tariffs for customers of Hydro-Québec and the merger of Gaz Métropolitain into Hydro-Québec. The first development could directly impact NB Power by expanding competitive pressures. Both developments are precedents in a bordering jurisdiction that bear on issues of concern to energy policy in New Brunswick.

### **Transmission Access in Quebec**

A transmission service bylaw was officially published by the Quebec government on December 31, 1996,<sup>20</sup> and goes into effect March 14, 1997. Hydro-Québec's new transmission service could directly affect New Brunswick's electricity system by increasing competitive options for consumers in New Brunswick and could indirectly affect NB Power's prospects in export markets. Some aspects of the new service provide a useful model that the New Brunswick government should be seriously considering, although some aspects need reconsideration and improvement.

The bylaw is directed at enabling point-to-point transmission service for electricity for resale to markets outside Quebec over Hydro-Québec's electric transmission system. Under the bylaw, electricity would flow through and out of Hydro-Québec's system, so that the only competitive effect would occur outside the borders of the province.

The recent dismissal by the Federal Energy Regulatory Commission (FERC) in the U.S. of BC Hydro's application for a marketers licence in the U.S., an application that was very similar to the Quebec bylaw, has caused Hydro-Québec to reconsider its own position on through-and-out transmission access. On December 15, 1996, Hydro-Québec also made an application to the FERC for a marketers licence based on the transmission access scheme set out in the bylaw. Following the failure of the BC Hydro application, representatives of Hydro-Québec have asked the FERC to temporarily suspend its examination of Hydro-Québec's application.<sup>21</sup>

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<sup>20</sup>*Gazette Officielle du Québec*, December 31, 1996, Vol. 128, No. 54. Hydro-Québec bylaw number 652 respecting the conditions and rate for wholesale electric transmission service. Hydro-Québec Act R.S.Q., c. H-5, S.22.0.1, O.C. 1559-96.

<sup>21</sup>See "Powerex officials surprised by FERC Rejection of Power Marketer Certificate" in , January 20, 1997, and "U.S. ruling upends B.C. Hydro bid: Energy commission denies licence to market power south of border; other utilities affected" in the *Globe and Mail*, January 18, 1997.

The transmission service set out in the bylaw is a bundled service where the basic service fee covers the cost of some ancillary services.<sup>22</sup> The ancillary services not included in the basic transmission service rate are: energy imbalance correction service, spinning reserve service, and supplemental reserve service. The customer is required to demonstrate that it has procured the later two services from alternative sources if it does not procure them from Hydro-Québec.

The treatment of ancillary services in the bylaw is inflexible. With the development of competitive gas markets in Ontario, distribution utilities have begun offering fully unbundled transmission service. Gas customers are now able to avoid all ancillary service charges, such as charges for storage and load balancing, if they can provide these requirements by alternative means at lower cost.

The bylaw will probably lead to a much higher level of disclosure of cost information by Hydro-Québec. Two factors that are likely to create an impetus for greater disclosure are the costs consequences of resolving transmission constraints and the energy imbalance correction ancillary service.

When faced by a transmission constraint that is created by a transmission customer's usage of the system, the customer is responsible for the costs of correcting the problem. Some such constraints require new facilities to be construction, but others can be more economically solved by changing the manner in which the rest of Hydro-Québec's power system is dispatched. If a change of dispatch is required, the incremental cost of the new system of dispatching generating units would be the responsibility of the transmission customer. For the transmission customer to independently confirm Hydro-Québec's conclusions on the system impact of the customer's usage, the utility will have to reveal detailed technical information about the operations of its system.

The bylaw provides for an energy imbalance correction ancillary service when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour. The bylaw establishes a deviation band of  $\pm 1.5$  percent, with a minimum of 1 MW, of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the transmission customer's scheduled transaction. If the energy imbalance is not corrected within a specified period, or if the imbalance is larger than the deviation bands, the transmission customer pays Hydro-Québec for such service. The rates paid by the customer are a function of Hydro-Québec's short-run variable cost of replacement power. Independent confirmation of variable costs of replacement power will require the utility to reveal detailed cost and technical information.

Under the bylaw, Hydro-Québec maintains a very high level of control and authority. For example, it sets the financial security requirements for transmission customers and it has access to extremely detailed information about the transactions its transmission customers execute.

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<sup>22</sup>The ancillary services bundled with the transmission rates are: scheduling, system control and dispatch service; reactive supply and voltage control from generation sources service; and, regulation and frequency response service.

The bylaw sets out two competing roles for the utility, one facilitating the transactions of its transmission customers and the other competing against those customers. An example of the utility's new facilitative role is the requirement that it assist transmission customers in negotiating arrangements with other transmission providers. On the competitive side, when Hydro-Québec offers a rate discount on transmission service or an ancillary service to non-affiliates, Hydro-Québec is not obligated to concurrently offer the same rate discount on such transmission service or such ancillary service to all eligible customers. This clause of the bylaw suggests that some customers may get service at rates below the posted rates if such an arrangement is in Hydro-Québec's interest.

The resolution of the facilitator/competitor dichotomy and the problems created by Hydro-Québec's high level of control and authority is to create institutions to perform the functions of transmission, power exchange, and system operations that are entirely and verifiably separate from Hydro-Québec. The first AIMS study on NB Power outlined a proposal to achieve this institutional unbundling in New Brunswick.

The transmission rates set out in the bylaw are undifferentiated with regard to location or timing of use. This is a major oversight since the economic value of transmission is highly sensitive to congestion on the system and opportunity costs. The only exception to the undifferentiated rate would result from the application of custom system impact studies and incremental facilities, both of which would be undertaken under Hydro-Québec's control but paid for by the transmission customer.

A key problem with the bylaw is the rates it imposes for transmission and ancillary services. The rates for firm service range from 0.8 ¢/kWh for service of one year to 1.6 ¢/kWh for daily service. The prices for non-firm service, which has much lower value than firm service, are equal to the rates for firm service of corresponding duration. For a customer to buy daily firm service, in perfect balance, and relying on Hydro-Québec for its reserve requirements, the charge for transmission service would be 2.08 ¢/kWh. The degree of excessiveness in this price for transmission and ancillary services is demonstrated by the fact that this price is close to the annual average gross revenue Hydro-Québec earns from spot market sales of delivered energy in the U.S. market.

The main flaws in the bylaw—high tariffs and location/time insensitive tariffs—may result from Hydro-Québec basing the bylaw on its current average cost for the existing transmission system. The cost of the existing system is driven to a very large extent by Hydro-Québec's reliance on geographically remote generating stations, primarily in Labrador and in the James Bay and Hudson's Bay drainage basins. Whether or not the level and structure of the tariffs are based on the existing system average, it is clear that the scheme ignores the economic advantage of generation located close to consumers relative to remote generation.

The high charges for ancillary services will likely represent less of a barrier to entry by large, technically sophisticated producers with access to a variety of power production and power management resource than it will for smaller producers. In the Lac St. Jean area, a concentration

of industrial self-generation from hydroelectric sources exists. This power is now virtually all consumed by those producing it, with a minimal volume of commercial trading taking place. These industrial self-generators may be among the early beneficiaries of the bylaw.

The bylaw contains contradictions that appear to result from a failure to carry the logic of the proposed new service to its natural conclusions. For example, on one hand, transmission customers will be allowed to sell or assign, in whole or in part, their rights to service. This provision is a positive contribution to the efficiency of the new system as it will help prevent transmission customers from allowing unused capacity from being wasted. On the other hand, such sale or assignment transactions are not permitted to exceed the greater of the original rate paid by the original customer or the maximum rate charged by Hydro-Québec at the time of the assignment. This provision may prevent holders of transmission access rights from realizing full value for their assets in some market conditions and will therefore weaken the incentives for participants to invest in transmission access and power development.

Québec's initiative to open its power system to trading holds the promise of widespread benefits including enhanced efficiencies, creating competitive benchmarks against which to measure Hydro-Québec, and reducing the need for megaprojects. New Brunswickers would benefit by following the direction Quebec has started to move in with regard to offering transmission service to its customers. However, many specific elements of Quebec's new transmission bylaw should be reconsidered.

#### **Recommendation:**

- 5. The government of New Brunswick should follow the lead of the government of Quebec and commit to opening its transmission system to independent electricity trading. However, many specific elements of Quebec's new transmission bylaw should be reconsidered.**

### **Horizontally Merging Gas and Electric Monopolies in Quebec**

Another major energy policy initiative of the Quebec government is its recent decision to incorporate Gaz Métropolitain, by far the province's largest natural gas distributor, with Hydro-Québec.

Québec's gas-electric merger horizontally integrates the monopoly structure of the province's energy system. The new consolidated agency controls about 75 percent of the non-transportation end-use energy consumed in Quebec. The very high level of market power that exists in the new entity creates a concern about potential negative impacts on energy consumers.

Interfuel competition between gas and electricity can only be weakened by the consolidation. This interfuel competition has brought major benefits to consumers of both gas and electricity in

other jurisdictions, such as Ontario. Demerger of once combined gas and electric companies in the United States has generated benefits.<sup>23</sup>

NB Power has major ambitions in the area of natural gas. In late October 1996, NB Power signed a precedent agreement with Westcoast Energy that, if carried out, will secure for NB Power a major amount of capacity on the pipeline Westcoast hopes to build through New Brunswick. The agreement would be for a capacity of 25 million cubic feet of gas per day, approximately 4 percent of the available capacity.

The following exchange between a Liberal member of the Committee, Mr. Armstrong, and Mr. Hankinson indicates that NB Power is considering becoming a horizontally integrated gas and electric monopoly.

Mr. Armstrong: Has any thought been given to NB Power being the sole distributor of [Sable Island] gas?

Mr. Hankinson: I am very much of the view that [that] is part of our future, yes. I want to be involved in natural gas distribution in the future.

Mr. Armstrong: Is that something that is before your people now, or is that something your people will be looking at later?

Mr. Hankinson: I have an undertaking from Westcoast, a signed letter indicating that in the event that they become the distributor of gas down the road, they will look favourably upon doing business with us.

Later Mr. Hankinson indicated:

Mr. Hankinson: . . . I think N.B. Power has to think more broadly down the road as to the businesses it will be in. I would hope that we are more than simply a seller of electrons, that we can broaden our base. I would look hard at becoming a natural gas distributor in partnership with someone down the road. That would perhaps be going beyond the mandate of NB Power as it exists today, but my terms of reference are to maximize the business potential of NB Power, and I don't have blinders on in any way, shape, or form as to how I will carry out that mandate.<sup>24</sup>

Complete institutional separation of New Brunswick's electricity system and its future gas system will help to maximize the benefits to customers of competition between gas and electricity. The competition will force suppliers of both energy forms to control their costs and to provide good service. Horizontal integration of gas and electricity would not be beneficial.

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<sup>23</sup>"Hydro-Québec expands monopoly", *Globe and Mail*, January 16, 1997.

<sup>24</sup> Hansard, Crown Corporations, October 29, 1996, pp. 15-16.

**Recommendation:**

- 6. The electric power industry in New Brunswick should remain institutionally separate from the future natural gas pipeline and distribution industry in the province to maximize the interfuel competition between energy forms.**

## Chapter 6 **Point Lepreau Nuclear Station's Mid-Life Crisis**

The 14-year-old Point Lepreau nuclear station performed very poorly in 1995 and 1996. My original study estimated that NB Power lost at least \$40 million at Point Lepreau in 1995, counting only incremental operating costs and ignoring capital costs from historic expenditure along with incremental capital costs from new capital spending. Incremental capital expenditure properly should be included in such an estimate but is not publicly available. NB Power identified an error in the calculation of fuel cost within this estimate. Correcting the error reduces my estimate of the loss at Point Lepreau in 1995 from at least \$40 million to at least \$38 million.

The utility's major complaint against my loss calculation for Point Lepreau is that 1995 was an atypically poor year of production. The position NB Power presented to the Committee was that production in the first decade of operation would better reflect future performance than that of recent years. Whether recent or early production is a better indicator of future production is a matter of judgement.

Operating costs in 1995 were historically atypical but may be typical looking prospectively. Recent experience in Ontario continues to confirm that aging badly affects Candu reactors. In December 1996, Ontario Hydro announced a \$1.95 billion write-down of nuclear assets on top of other write-downs and a massive \$3.6 billion write-down in 1993, about half of which was nuclear related. Along with the December write-down announcement, Ontario Hydro announced its intention to close Bruce Unit 1 in the year 2000 after 24 years of service, the last 10 years of which were characterized by declining performance and high costs.

As Ontario Hydro before it, NB Power has come to rely on lifetime average capacity factor statistics to compare its reactor performance with that of others in the world. NB Power's 1995-96 annual report provided an international comparison of lifetime average capacity factors. Experience with all older Candu reactors shows that high rates of production in the first 12 to 13 years of service, similar and in some cases better than those of Point Lepreau at the same stage of life, are usually followed by very poor production and high operating costs. Lifetime performance averages for Candu reactors have proven to be unreliable indicators of reactor performance. Had Lepreau been shut down permanently at the end of March 1995, its "lifetime" capacity factor to the end of March 1996 would have been over 83 percent instead of the actual level of 86.9 percent. Eliminating the station's production for a year would not be easily detected by the apparently small change in the figures. NB Power should not rely on lifetime capacity factor averages to assess the prospects for Point Lepreau.

NB Power's published accounts make it very difficult to independently calculate the costs of operating Point Lepreau. As I recommended in my first study, NB Power's annual financial statements should provide detailed information on the costs of the Point Lepreau station, separating and itemizing fixed costs, variable costs, and annual incremental capital costs.

In response to the poor work practices at the Point Lepreau station, which were discussed in my first study, the federal nuclear regulator, the Atomic Energy Control Board, has recently applied

tighter restrictions on NB Power, requiring the utility to report every six months on the status of its work practices.<sup>25</sup>

The public of New Brunswick is becoming painfully aware that the aging of the Point Lepreau station is a key problem for the utility. Recently released information regarding both the corrosion/erosion of feeder tubes carrying primary heat transport water from Point Lepreau's core and the leaking of one of those pipes provide another instance of the negative effect on the station of reactor aging.

The response of NB Power to the recent problems is a matter of concern. On January 14, NB Power officials appeared before the Standing Committee on Crown Corporations to answer questions about the feeder pipe corrosion/erosion problems. At that meeting, NB Power's estimates of the cost and difficulty associated with responding to the problem, which utility officials characterized as minor, focused only on the problem as it was currently known. On January 20, the utility announced that a leak was discovered in one of the same feeder pipes in which the corrosion/erosion was identified. However, the utility's January 20 press statement indicated that the pipe wall in the leaking pipe had not thinned beyond expectations.

NB Power's January 20 press statement claims that if the leaking pipe is the only one requiring replacement, and if further work is not necessary, the station will be shut down for about three weeks while repairs are done.

At the January 14 meeting, Mr. Hankinson offered assurances to the legislators and to the public about the condition of the Point Lepreau reactor. Given the existing body of experience with piping problems in Candu stations and the frequently repeated unexpected discovery of new problems, however, it is not reasonable to assume that the current knowledge of Point Lepreau's feeder pipes had identified the full extent of their problems.

The Point Lepreau should be shut down for a detailed inspection of all primary heat transport pipes. The station should not be restarted until the Atomic Energy Control Board has reviewed and approved the integrity of the whole system.

As previously noted, my report's criticism of NB Power's excess capacity and megaproject excesses at Belledune and Dalhousie was dismissed by some officials within NB Power and the government on the grounds that the excess capacity was needed in light of potential problems with Point Lepreau. This argument reflects a recognition at the highest levels of government and the corporation that the future of Point Lepreau is in jeopardy. However, as noted previously, New Brunswick has available much less expensive methods of protecting reliability from the fickle Point Lepreau station than by building stations like Belledune and Dalhousie.

All factors that reduce the cost of energy in New Brunswick—whether the introduction of Sable Island gas<sup>26</sup> or the advent of competition in the electricity sector— reduce the social cost of

replacing Point Lepreau when that becomes necessary. The government of New Brunswick should make a careful assessment of the life expectancy of the Point Lepreau station with a view to planning for its early closure, taking account of public input, technical assessments, and economic evaluations.

**Recommendation:**

7. **The government of New Brunswick should make a careful assessment of the life expectancy of the Point Lepreau station with a view to planning for its early closure, taking account of public input, technical assessments, and economic evaluations.**

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<sup>26</sup>The prospect of Sable Island gas becoming available in New Brunswick, perhaps as early as November 1999, continues to strengthen. According to the current National Energy Board schedule for Sable Island development hearings now underway, the presentation of final arguments by the parties in the process will commence before the end of May this year. The issuance of a decision by the tribunal hearing the development applications is expected within a few months of the close of argument. The decision will likely outline the terms and conditions the applicants will have to abide by in the development. As noted in the first AIMS report, for Sable Island gas to be attractive in the U.S. markets where most of the gas is intended to be sold, it will almost certainly be attractively priced for industrial applications near the pipeline in New Brunswick.

## Conclusion

NB Power's apparent comfort with its current financial and operational situation stands in sharp contrast its glaring problems. Management's failure to publicly recognize the utility's problems badly weakens the capacity of the utility to respond appropriately to these problems.

NB Power's management relies on incorrectly optimistic statements about its generation reserve. It has failed to appropriately analyse its costs related to \*NB Coal and overstates the value of NB Coal's production. It has published flawed analysis of the rates it charges customers in Saint John in an attempt to prove after the fact that the deal it signed in 1995 with Civic Hydro was lower than an open market would have charged. It claims that its debt level is normal, when in comparison to other comparable Canadian utilities its debt level is much higher. And it has recently issued public assurance that its nuclear problems are in hand, while at the same time as new problems are being discovered at the Point Lepreau reactor.

Failure to recognize and respond effectively to these issues can only increase the burden on New Brunswickers in the long term. Taken together, these issues suggests that the solutions to New Brunswick's electricity problems will not come from within the utility but from outside agencies. Government and the public at large will have to take the initiative to create a more open and responsive system.

If the utility recognized and sought solutions to its problems, it would initiate significant financial and operational changes. The utility's balance sheet should be cleaned up. Overvalued assets should be written off and accounting changes implemented to reflect better the condition of the utility. Operations should be rationalized. Glaring weaknesses and loss-making operations should be dealt with immediately. Despite recent changes, NB Coal continues to make a loss and is likely to continue so in the foreseeable future. NB Coal should be privatized or shut down. Unneeded and inefficient generating stations like Grand Lake should also be privatized or shut down. The current condition and future of the Point Lepreau station should be comprehensively reviewed. Rules and institutions should be enable the power system to be opened up to new customer choices.

The electric power institutional status quo in New Brunswick leads to a confusion of the interests of taxpayers and ratepayers and is a detriment to both. Taxpayer's interests would be best served by actions which maximize the value of NB Power's assets. Loss-making operations should be rationalized, and operating and capital efficiencies enhanced. Ratepayer interests benefit from efficiency but, particularly in the short term, ratepayers also benefit from NB Power's practices of cost deferral and incomplete recognition of costs in its accounts. A key benefit of privatization would be the clear separation of the interests of taxpayers and ratepayers. Privatization coupled with the introduction of competition holds the promise of benefiting both interests.

NB Power has not raised any substantive objections to the first AIMS study that would lead to a revision of any of its conclusions, although NB Power did correctly identify some errors in the study.