REGULATORY OVERSIGHT OF ENERGY MEGAPROJECTS IN NEWFOUNDLAND AND LABRADOR AND IN MANITOBA:

A Tale of Two Debacles

Presentation to FCPP

David Vardy

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Table of Contents

Executive Summary 3

1.0 Introduction 5

2.0 Politics: The History of Muskrat Falls 5

3.0 Comparison of two provinces 8

3.1 Comparison of electric power systems 11

3.2 Churchill Falls 12

3.3 Load Growth 13

4.0 The Muskrat Falls Project and Manitoba Power Development 13

5.0 Similarities 16

5.1 The Role of Exports 16

5.2 Water and Water Management 17

5.3 Subsidies 17

5.4 Investment of non-renewable revenues in renewable resources 17

5.5 Rising Electricity Rates 17

6.0 Regulatory Oversight and Monitoring 18

6.1 Muskrat Falls and NFAT 18

6.2 Reliability Hearing in NL 20

7.0 Differences 20

7.1 Interconnection 20

7.2 Fiscal Impact of Hydro Development in Each Province 20

8.0 Conclusion 21

Executive Summary

Provincial crown corporations in the Canadian electric power sector have amassed strong political influence and can shift large public debts to future generations by building energy megaprojects. Citizens count on strong public utility boards to protect them from the monopoly power of such publicly owned utilities and to test the prudence of their capital expansion plans. Unfortunately some provinces have usurped the power of these boards and weakened their ability to discharge their role. This paper calls for strengthening of the regulatory and oversight process in both Manitoba and in Newfoundland and Labrador. Crown corporations should be subject to the same rigorous oversight as that applied to investor-owned public utilities in the United States, rather than the "lighter" form of regulation which has evolved in some provinces.

Both Manitoba and Newfoundland and Labrador (NL) have embarked on a high risk energy development strategy, spearheaded in both cases by crown corporations, with monopoly power in their jurisdictions. Crown corporations have been used by provincial governments in Canada as instruments for electric power development, notably Hydro Quebec, Manitoba Hydro, British Columbia Power and latterly, by Nalcor Energy, in Newfoundland and Labrador.

In some jurisdictions, publicly owned companies have been privatized, such as Nova Scotia Power, now owned by Emera Energy, an investor owned enterprise. In the United States most electric utilities are investor owned and are regulated by strong public utility commissions, whose role is to protect both the consumer and the investor. They protect the consumer by ensuring that monopolistic public utilities do not abuse their monopoly power. They protect the investor by allowing a rate of return on rate base which is competitive with returns owned in other industries with comparable risk. They try to encourage competition and to make utilities behave as if they were operating in a competitive environment.

Public utility boards in Canada play the same role but their powers are often undermined by governments, strongly influenced by their crown corporations, which have become powerful entities in their own right. Sometimes the powers of these publicly owned companies grow over time as their size and influence evolve. In other cases, such as that of Nalcor Energy, they were created by strong political leaders, such as Premier Danny Williams, who vested them with powers beyond those normally given to crown corporations.

Nalcor Energy is developing the $9.0 B Muskrat Falls project (this includes the Maritime Link to Nova Scotia, as well as allowance for funds used during construction, AFUDC). Nalcor is not a regulated company, even though its wholly owned subsidiary, NL Hydro, is regulated by the PUB. This project has been sanctioned by the provincial government without full regulatory review. Two reviews were made before sanctioning and both raised serious concerns about the project.

The first review was that of a federal provincial panel, which held extensive public hearings in Newfoundland and Labrador and in Quebec and reported in August of 2011. The panel concluded that "Nalcor's analysis that showed Muskrat Falls to be the best and least cost way to meet domestic demand requirements is inadequate." The Newfoundland and Labrador PUB report of March 30, 2012 concluded that the Board could not make a recommendation because the Class 4 Cost estimates, based on only 10% of the engineering design work, were not sufficient to reach a reasonable conclusion that the cost of Muskrat Falls would be less than that of the isolated Island option. There has been no public review which endorses the prudence of the project in terms of cost, reliability and environmental impact.

In Manitoba, there is currently a Needs for and alternatives to (NFAT) panel of the Public Utilities Board reviewing 15 different options for hydroelectric development, including option 14, known as the "preferred development plan," which includes the 695 MW Keeyask project and the 1395 MW Conawapa project, both on the Nelson River, in northern Manitoba, along with new interconnections to US export markets. Manitoba had already approved a major new transmission line (Bipole III) and committed itself to the Keeyask project prematurely, without PUB review.

Manitoba Hydro, under the "preferred development plan", including the new DC line known as Bipole III, will be spending $20 B over the next 12 years. The Manitoba Government's Terms of Reference for the NFAT panel prevented any review of Bipole III, requiring that it and the pre-build costs for Keeyask and Conawapa be treated as sunk costs. Yet, there are alternatives to Bipole III and without Bipole III there can be no Keeyask or Conawapa.

This paper compares the NL development with those of Manitoba. Both projects have been strongly supported by their provincial governments, which have not allowed their respective PUBs to function as they should. In the case of NL the Muskrat Falls project was exempted from the normal legislative authority of the Board to review capital projects. The PUB was instead asked to play an advisory role in confirming that the cost of the interconnected option (including Muskrat Falls) was lower than the isolated Island option, built around a combination of Island hydro and a large thermal plant at Holyrood, just outside of St. John's. The PUB was given outdated cost information and load growth projections, along with an impossibly short time frame to report. They were also denied the opportunity to examine alternative options, such as demand side management, conversion of the Holyrood plant to use natural gas and use of wind power. Nor could they convene a technical conference of energy experts.

The Manitoba PUB does not have statutory authority to review capital projects but instead play only an advisory role when the provincial government makes a reference. The reference leaves the Board with little authority to examine alternatives other than those presented by Manitoba Hydro.

The public needs to have more a more transparent process, including a strong public utilities board, when such large investments are at stake. The public utilities board should be vested with the powers of a court of law and its decisions should be subject to appeal only to the Supreme Court. The public should be encouraged to participate through a consumer advocate appointed by the Board or by a panel of judges. Intervener funding should be available so that ratepayers and other stakeholders can bring new evidence forward for the Board.

Other agencies whose role it is to protect the public should be monitoring these major projects. Such oversight is not currently being undertaken in either province. Nalcor Energy enjoys some immunity from the Auditor General and can block the release of a report if the AG decides to present information to the legislature which the CEO of Nalcor considers "commercially sensitive". In Manitoba the Auditor General has recused herself from undertaking an audit of Manitoba Hydro. Nalcor has also refused to supply information requested under access to information legislation, on the same grounds of commercial sensitivity, without the applicant having a right to appeal.

The risks of these two major hydro developments include the potential for cost escalation which may increase the cost to ratepayers beyond their capacity to pay. Such cost pressures are already appearing in Newfoundland and Labrador and will add to the overall cost of $9 B, including the Maritime Link and allowance for funds used during construction (AFUDC). Significant load growth is projected in both provinces, notwithstanding the fact that population has declined in NL and is expected to decline further, while Manitoba's population growth is less than the Canadian average. Other risks include declining export prices, to which Manitoba is particularly sensitive. In NL the Muskrat Falls project depends on a controversial water management agreement for the Churchill River, on which Quebec Hydro has sought clarification in its courts.

The Maritime Link was originally intended to facilitate the sale of surplus power to markets in the US and the Maritime provinces, with the Island as the principal customer for the power, receiving most of the energy. The commitment to Nova Scotia has now gone well beyond the original 20% of the power for 20% of the risk, raising the question as to whether Nova Scotia has now become the principal beneficiary without bearing a proportionate share of the cost.

In Newfoundland and Labrador the shadow of Churchill Falls hangs over Muskrat Falls. The government believes the Maritime Link will provide an alternative access to markets. The fact of the matter is that the size of the Link, scaled at 500 MW, is sufficiently large to accommodate only Muskrat Falls power and not to carry power from the Gull Island project or to allow export of Churchill Falls power, after the infamous contract with Hydro Quebec expires in 2041.

Both provinces need a robust regulatory regime with a strong PUB, empowered to ensure that system planning is being undertaken, to review all capital expenditures and to monitor expenditures to ensure that they are not included in the rate base if they are not confirmed to be "prudent". If they are not included in the rate base then the utilities cannot recover costs from

ratepayers. In the case of a crown corporation, however, costs not borne by ratepayers are inevitably shifted to taxpayers.

Both Nalcor Energy and Manitoba Hydro should be fully regulated. Oversight should be strengthened as well by improving access to information legislation and allowing unfettered access by the Auditor General. Public utility boards should be strengthened to rectify the unbalanced relationship between crown corporations and the boards responsible for their oversight. Such rebalancing will support civic engagement and improve the functioning of our democratic institutions.

Public dialogue on these major public policy issues should continue to be encouraged through the work of organizations such as the Frontier Centre for Public Policy. The FCPP is independent of governments, of universities and of other vested interests. It has the ability to enlighten the public as to the need for better practices in public utility regulation to rebalance the relationship between citizens and the crown corporations which they own but do not control.

1.0 Introduction

I will talk today about NL's hydro plans and how they compare with the "preferred development plan" of Manitoba Hydro. First I will describe briefly the Muskrat Falls project and provide some context before looking at the similarities and differences between the two power developments. I will deal with export revenues, water management, regulatory oversight of Crown Corporations, and participatory democracy in the provinces of Newfoundland and Labrador and Manitoba.

My vantage point is that of an economist and former chair of a regulatory tribunal. I value democracy and believe in transparency in government. I strongly value the engagement of informed citizens in the democratic process. With respect to the Muskrat Falls project I have advocated a strong role for the Public Utilities Board as a quasi-judicial tribunal, operating with integrity, transparency and independence in discharging its legislative functions, both regulatory and advisory. The role of this quasi-judicial board is similar to that of a court in enforcing the rule of law in a democratic society.

My objection to the project is based on two factors. First is the failure to follow best practices in regulatory governance, which would have allowed the PUB to carry out its statutory duties under the Public Utilities Act. This is shows lack of deference to a quasi-judicial board. The second is the extremely high cost of developing Muskrat Falls power and the failure to recognize that global energy economics have changed over the past ten years which has made the project's economics highly questionable.

2.0 Politics: The History of Muskrat Falls

The Muskrat Falls project was announced by Premier Danny Williams on November 2010 just two weeks before he stepped down as Premier. This was the crowning glory of his administration, his legacy project. The plan included the generation site at Muskrat Falls, along with 1150 km of transmission lines from Muskrat Falls to St. John's as well as the Maritime Link

from Newfoundland to Nova Scotia. Emera Energy of Nova Scotia became a partner with Nalcor Energy and was to receive firm power in the amount of 20% of the average power output from Muskrat Falls. Two weeks later Premier Williams resigned, having negotiated the terms of the agreement with Nova Scotia, along with agreements with aboriginal groups. His successor was left to negotiate a federal loan guarantee.

Premier Williams was succeeded by Premier Kathy Dunderdale. The relationship which Williams developed with the federal government was a stormy one, largely because the federal government refused to endorse the equalization proposal advanced by Williams. Dunderdale adopted a more conciliatory approach and endorsed the Harper Conservatives in the 2011 federal election. In exchange for her support she received a commitment from Prime Minister Harper for a loan guarantee of $6.3 B for the Muskrat Falls project, including the Maritime Link.

The framework agreement for the loan guarantee was announced on November 30, 2012. The Dunderdale administration "sanctioned" the project in December of 2012, authorizing Nalcor Energy to begin spending and committing large amounts of money. All of this money was financed exclusively by "equity" payments from the Province, up to the December 2013 finalization of the federal loan guarantee. The guarantee had been held in abeyance, notwithstanding the announcement in November, awaiting a final agreement with Nova Scotia on the Maritime Link.

The Utilities and Review Board of Nova Scotia was not happy with the agreement negotiated between Emera and Nalcor. They asked for it to be renegotiated. The final outcome of the process was that Nalcor agreed to make available a determinate amount of "market power" at spot market rates, in addition to 165 MW of firm power, equating to 20% of the 824 MW average capacity of Muskrat Falls. This additional power must average out at 1,200 GWh annually over 24 years but could reach 1,800 GWh.

The Williams administration had announced in its 2007 Energy Plan (*Focusing Our Energy*, 2007) that it planned to develop both Muskrat Falls and Gull Island, major hydro projects on the Lower Churchill River, downstream from the huge Upper Churchill project, which had been built by an investor owned company, BRINCO. BRINCO produced its first power in 1972, and the Government of Newfoundland and Labrador took a controlling interest in 1974,during the administration of Premier Frank Moores.

Much later a joint federal-provincial review panel was created to review the combined Lower Churchill project which would begin with the development of the 2,250 MW Gull Island project and later construct Muskrat Falls. The energy plan included a commitment to consult with aboriginal groups in Labrador.

The energy plan linked this development to the inequity of the infamous Churchill Falls power project which had generated revenues to Quebec of $19 B and $1 B to Newfoundland and Labrador, up to the date of the Energy Plan. The power rates paid by Hydro Quebec to the

Churchill Falls Limited Corporation (CFLCo) are currently one quarter of a cent per kilowatt hour (KWh), reducing to one fifth of a cent in 2016.

Nalcor Energy was created as a provincial Crown Corporation to manage the Lower Churchill development as well as to act as a catalyst for oil and gas exploration and development. It also holds the Provinces's interest in Churchill Falls Corporation (CFLCo), along with the water rights for development of the Lower Churchill. In 2007 the House of Assembly changed the Electrical Power Control Act (EPCA) to empower the Public Utilities Board to regulate power production, by imposing an agreement to manage the flow of water from the water reservoirs on the Churchill River, flowing through Churchill Falls, Gull Island and Muskrat Falls. The legal authority of this agreement has been controversial.

The Energy Plan identified the 490 MW thermal plant at Holyrood as "essential to the Island system". The Lower Churchill project was identified as the means to remove this plant from the system, along with its greenhouse gases and other emissions. When Premier Williams announced the Muskrat Falls project he indicated that the project would enable the Holyrood plant to be decommissioned, thereby replacing a plant which was reaching the end of its useful life and removing its greenhouses gases and other emissions. He indicated that there was a large cost advantage in developing Muskrat Falls rather than replacing Holyrood. There was little discussion at the time as to whether Muskrat Falls power would be as reliable as power from Holyrood, located in the largest urban concentration on the Island. This reliability issue has now come to the fore in 2014 in light of outages early in the year and the current inquiry by the PUB will be probing whether Muskrat Falls is capable of supplying reliable power without a thermal plant close to St. John's and the Holyrood plant is to be closed after interconnection.

The Lower Churchill development was dependent on access to export markets. This could be achieved by wheeling power through Quebec or by building transmission lines to the Island and on to Nova Scotia, across the Strait of Belle Isle and the Cabot Strait. Quebec has been reluctant to wheel power from Labrador, preferring to buy the power at the boundary between Labrador and Quebec. This unwillingness to facilitate the flow of electrons across Quebec, combined with the inequity of the Churchill Falls power contract of 1969, has created long lasting tension between the two provinces. Various premiers have attempted unsuccessfully to negotiate some kind of resolution with Quebec. Newfoundland and Labrador has taken action in the courts to overturn the Churchill Falls power contract, again without success. The failed negotiations focused on forging a partnership for development of the Lower Churchill, setting aside the Churchill Falls power contract. Such negotiations were conducted by Premiers Grimes, Tobin and Williams.

Premier Williams announced that the Maritime Link would bypass Quebec and enable surplus Muskrat Falls power to be exported. Emera's wholly owned subsidiary, Nova Scotia Power, would build the Maritime Link and would allow Nalcor Energy to use it to export Muskrat Falls power. Emera would also be given the opportunity to invest in the Labrador Island Link (LIL)

and would receive 165 MW of firm power (plus 240 GWh of supplementary power for five years) and up to 1,800 GWh of "market" energy. The 165 MW of firm power, along with the 240 GWh of supplemental energy for five years is known as the "Nova Scotia Block". There is no energy charge for the Nova Scotia block. The "market energy" is sold at spot market rates. The conclusion of this agreement in November of 2013 and the approval by the Nova Scotia Utilities and Review Board of the contentious Energy Access Agreement with Nalcor confirmed the national, inter-provincial character of the project, thereby enabling the federal loan guarantee to be consummated.

The Dunderdale administration refused to allow the Public Utilities Board to conduct a full review. They asked the PUB instead to provide an advisory opinion on Muskrat Falls. The Board was not given either the information they needed or the time to answer the reference question. When they released their report they, as a quasi-judicial board, were denounced by the Premier, leading some citizens to question whether the "rule of law" had been abandoned.

The resignation of Premier Dunderdale in February of 2014 was triggered by low polling results and defections from the Progressive Conservative Party. The low polls resulted in part from the infamous Bill 29 (an amendment to the Access to Information and Protection of Privacy Act), which was perceived to be curtailing the public's right to access to information on government activities. Government's unwillingness to allow the Public Utilities Board to undertake a full review of Muskrat Falls and the perceived inequity of the agreement with Nova Scotia are believed to be factors in Dunderdale's resignation, along with her refusal to accept that power outages in December and January represented a "crisis". Premier Tom Marshall, Dunderdale's successor until the P.C. party's leadership convention in July, has continued to support the Muskrat Falls project. The new Premier, Frank Coleman, to be confirmed by acclamation in July, has supported the project, along with the other major policies of the Williams, Dunderdale and Marshall Governments.

3.0 Comparison of two provinces

Manitoba is much larger in terms of population, 1,250,000 compared with 512,000 for NL. Manitoba is 650,000 square km compared with 406,000 km for NL, 109,000 km on the Island and 297,000 in Labrador. The Churchill Falls power plant is located on the Churchill River in Labrador; this plant is owned 65.8% by Nalcor Energy a Newfoundland and Labrador Crown Corporation. Since 1992, the year of the cod moratorium, our population has declined from 580,000 to 512,000. The population is forecast to decline further over the next ten years.

Manitoba's population, on the other hand, is growing, largely due to its successful immigration policy. Yet both Manitoba and NL are growing at a lower rate than Canada as a whole. See chart 1 which shows how each province has grown since 1992, compared with Canada.

The cod moratorium had an enormous impact on rural Newfoundland, depopulating large areas. The Avalon Peninsula has escaped largely unscathed from the collapse of the groundfish resource because of oil and gas developments. We have three producing oil wells and a fourth expected in 2017. Oil revenues contribute 36.5% of the province's revenues but now have fallen off from the peak. GDP per capita has been growing and we are now above the national average.

We no longer receive equalization payments. Our public debt has remained high, however, and we are budgeting for a large deficit this year, $538 M. See charts 2 and 3 below, showing GDP per capita and net debt per capita for both provinces.

Chart 1: Population Changes Since 1992

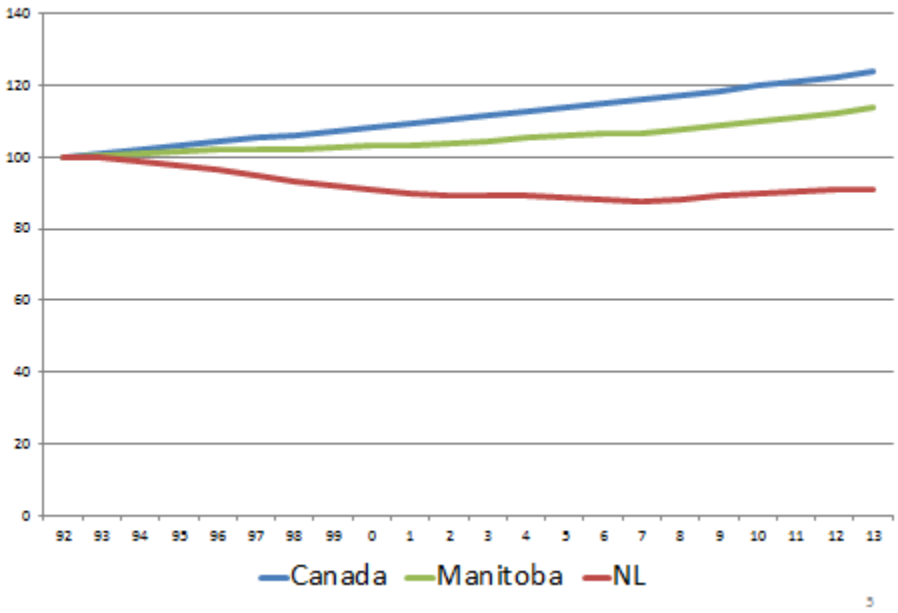


Chart 2. Gross Domestic Product per Capita

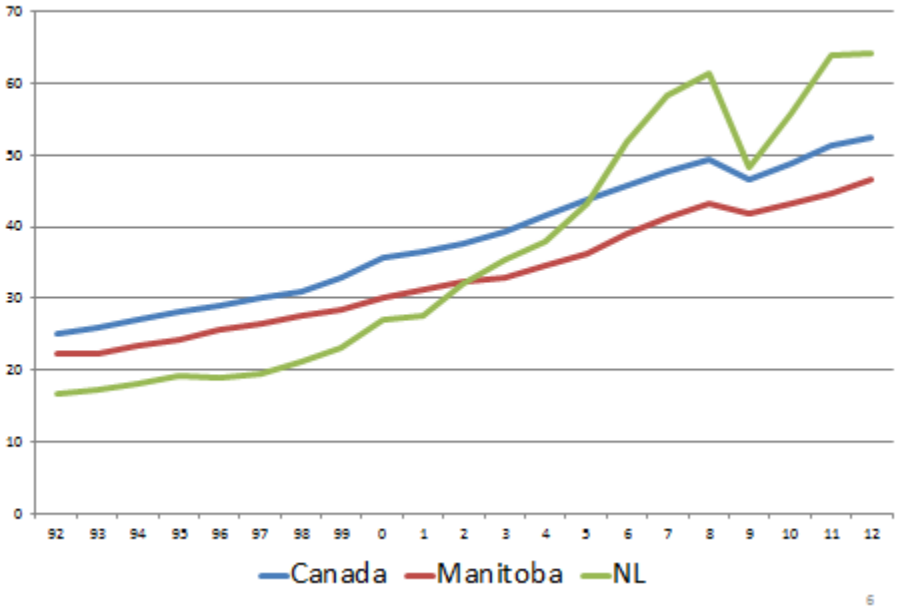
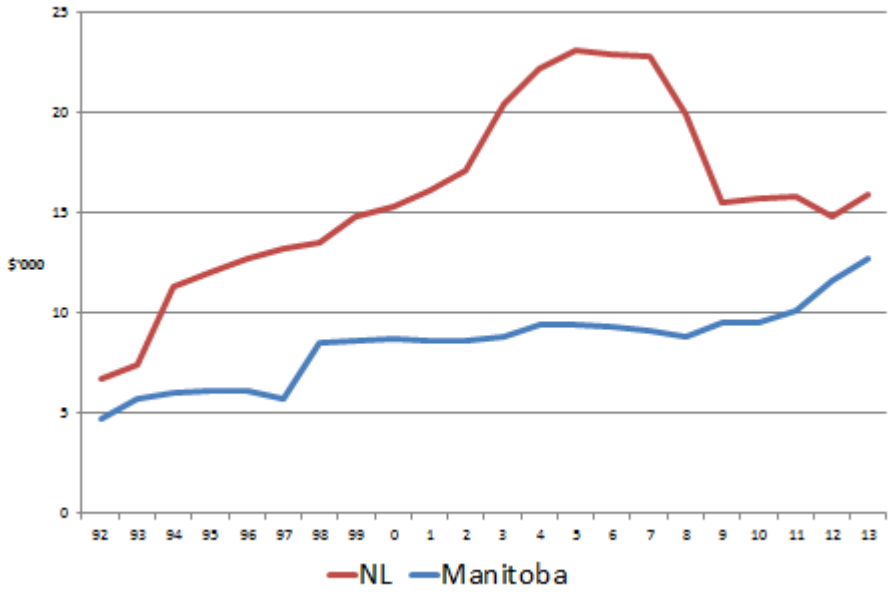


Chart 3. Net Debt per Capita, Manitoba and NL



Our net debt is projected to grow to close to $10 B by the end of the year. We are depending on continuing high oil prices for our prosperity. High oil prices will generate large royalty revenues and enable us to support our growing public debt. A drop in oil prices will put an end to

exploration activity and place our large Muskrat Falls investment in grave danger. The long term outlook is for oil revenues to decline as existing reservoirs are depleting at a faster rate than the discovery of new oilfields. The bleak fiscal outlook frames the context for examining Muskrat Falls, which will double our public debt.

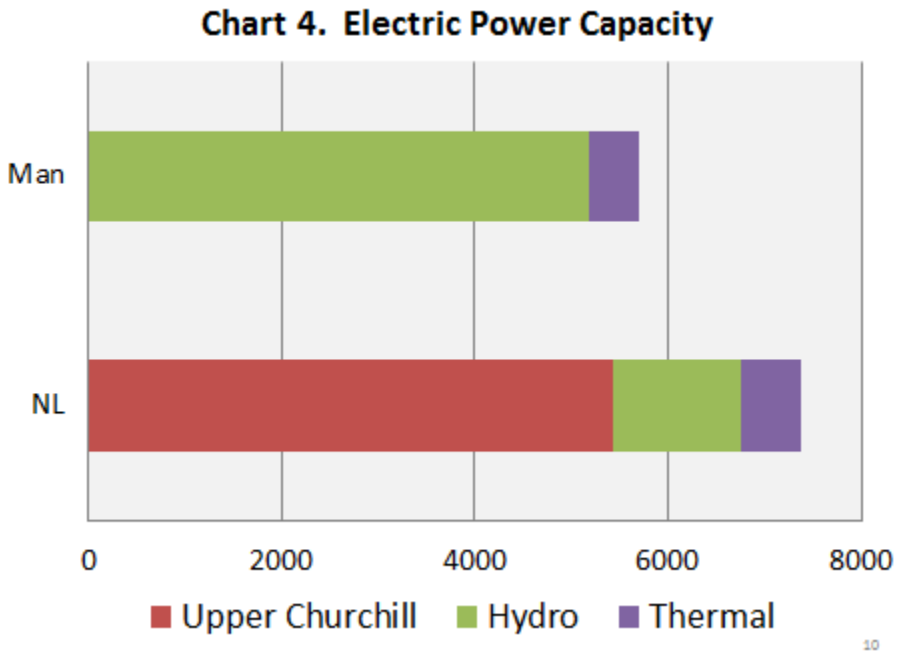
3.1 Comparison of electric power systems

In NL we have Newfoundland and Labrador Hydro (Hydro), which is managed and wholly owned by the Crown Corporation, Nalcor Energy. Hydro operates the generation and high voltage transmission systems. Newfoundland Power, owned by Fortis, a publicly traded company, is the distributor for most of the Island of Newfoundland, purchasing its power from Hydro. In Labrador, Hydro undertakes generation, transmission and distribution. In Manitoba your electricity is provided by a vertically integrated Crown Corporation, Manitoba Hydro.

Your rates are close to the lowest on the continent. Our retail rate is 64% higher than yours at 12.55 cents per kilowatt hour in St. John's, compared with 7.63 in Winnipeg. See comparison map below, prepared by Hydro Quebec, showing prices at various locations, with the lowest rates in Quebec, followed closely by Manitoba.

Electric power capacity is dominated in both provinces by hydroelectric power, although NL Hydro operates a 490 MW thermal plant just outside of St. John's at Holyrood. Muskrat Falls has been conceived as a replacement for the Holyrood plant, with surplus power being exported to Nova Scotia and other markets along the Eastern Seaboard. See the following chart for

comparison of capacity between the two provinces. Churchill Falls power is sold to Quebec except for 300 MW of recall power available for use in NL.



3.2 Churchill Falls

Churchill Falls is a major public policy issue due to the existing 65 year contract with Hydro Quebec ending in 2041; under this contract power is sold at one quarter of a cent per kwh, reducing in 2016 to one fifth of a cent for the remaining 25 years. Attempts to resolve the inequity of the arrangement have been unsuccessful. Quebec has been willing to participate in development of power on the Lower Churchill but has not agreed to the wheeling of power through Quebec. They want to buy power at the border, as they did with Churchill Falls. There are two additional sites for power development on the Lower Churchill, one at Gull Island and another smaller project, Muskrat Falls, further down the Churchill River.

The inglorious history of Churchill Falls is a major driver behind the Muskrat Falls project, which has been promoted as a solution to the impasse with Quebec. However, in 2041 the contract with Hydro Quebec will come to an end and we will have access to 5,428 MW of low cost power. What we need is a bridge to 2041. Muskrat Falls is an expensive alternative, one that will burden us with debt and leave us out of step with other areas with access to low cost power. Its capacity exceeds the needs of the Province for the immediate future, allowing some combination of firm and market power to be exported. However, the project is by no means the key to renegotiate the Churchill Falls power contract.

3.3 Load Growth

Newfoundland and Labrador load is forecasted to grow by 1.4% over the period to 2031, with higher growth of 3.1% up to 2016 and 0.8% growth from 2016 to 2031. The growth over the past 20 years has been negligible, resulting in part from the loss of two major paper mills. Growth over the next few years will be driven by the opening of a new smelter, expected next year. We don't have a growing population or growing industrial demand. Nor do we have the prospect of lucrative export contracts. Efforts to encourage demand side management (DSM) have been minimal. Electric space heating has been a major driver of growth in residential load, with no effort to discourage such inefficient use of electricity.

Muskrat Falls is driven by the need to replace the aging Holyrood thermal plant, which burns bunker C fuel oil. It is also driven by the perception that we need to establish an interconnection with the mainland of Canada, in addition to the transmission lines from Churchill Falls to Quebec. Muskrat Falls is a better fit with the needs of the Island than the larger project at Gull Island and that explains why Muskrat was moved ahead of Gull Island for immediate development. The agreement to sell power to Nova Scotia persuaded the federal government to approve the loan guarantee because it made the project inter-regional in nature and national in scope.

4.0 The Muskrat Falls Project and Manitoba Power Development

Manitoba Hydro has presented fifteen options to the NFAT Panel of the Public Utilities Board, ranging from all natural gas fired thermal to dominantly hydroelectric generation. The "preferred development plan" (plan number 14 of 15) is comprised of two generation projects and a major north to south transmission line. Manitoba Hydro's (MH) Preferred Development Plan includes: the development of Keeyask (2019 in service) and Conawapa (in service 2025) generating stations on the Nelson River, the construction of a new high voltage direct current (HVDC) transmission line (BIPOLE 3) from the Nelson River to southern Manitoba, along with other additional AC transmission line interconnections and the building of interconnections into the United States to facilitate exports. This development plan will cost more than $20 B over the next 12 years. Large financial commitments to implement these projects have already been made without regulatory review. The NFAT panel is currently hearing evidence that is questioning the prudence of the "preferred development plan".

Muskrat Falls has a capacity of 824 MW, slightly smaller than Keeyask, at 695 MW, and much smaller than Gull Island, at 2250 MW. The Island will use 40% of the energy to retire Holyrood. Including interest the project cost will be $7.2 B, not including the Maritime Link, which brings it to a total cost of $9.0 B, without cost overruns. The TL (including the line from Churchill Falls to Gull Island and Muskrat Falls) will span 1,500 km and will cross two Straits, the Strait of Belle Isle and the Cabot Strait both of which bracket the Gulf of St. Lawrence. This distance is similar to the distance between Manitoba's northern hydro resources and the main population centres in the south.

See comparisons in Table 1 below between the two provinces showing the proposed developments. Export revenues in Newfoundland and Labrador are one third of Manitoba's, but the energy exported is three times as large, 31 TWh vs. 9 TWh.

Table 1: ELECTRIC POWER COMPARISONS		
	NL	Manitoba
Export Energy/Value	31 TWh/$127M	9 TWh/ $353 M
Installed Capacity	7,386 MW	5,642 MW
Churchill Falls	5,428 MW	
NL-Island only	1,958 MW	5,642 MW
Muskrat Falls/Keeyask MW	824 MW	697 MW
Muskrat Falls/Keeyask , Cost	$7.2 B	$6.2 B.
Maritime Link 500 MW Cost	$1.8 B	
Gull Island/Conawapa MW	2,250 MW	1,485 MW
Gull Island/Conawapa, Cost	$3.9 B +	$10.2 B
Bipole III		$3.3 B

15

Table 2 shows the elements of the agreement between Nalcor and Emera for the sale of the Nova Scotia block of 165 MW of power, and 980 GWh annually, for 35 years, as well as an additional amount of power up to 1.8 TWh for 24 years. The Maritime Link was subject to review by the Nova Scotia Utilities and Review Board, which forced Emera to renegotiate the agreement to expand exports by an additional 1.8 TWh of market power, at spot rates, rising from five cents to nine cents per kwh, over 24 years. On top of that, 240 GWh of "supplemental energy" annually for five years is included in the "Nova Scotia block".

The quid pro quo for the Nova Scotia block, amounting to 1,220 GWh annually for the first five years, is Nalcor's access to the Maritime Link for 35 years for the transmission of surplus power into markets in the Maritimes (including Nova Scotia) and New England. For the first five years the annual commitment of power can be as high as 62% of Muskrat Falls production of 4,900 GWh per year. For the remaining 19 years the commitment drops to 57% and, for the final eleven years to 20%. So much for the 20 for 20 principle, whereby Nova Scotia would receive 20% of the power for 20% of the investment! The investment has remained the same but the quantum of power has increased dramatically!

Nalcor is required to share cost overruns on the Maritime Link. Emera has no such commitment to share overruns on the NL components of the project. This commitment of energy to Nova Scotia contradicts the fundamental principle of the case presented by Nalcor to the Newfoundland and Labrador PUB, namely that the rationale for the project was to serve the needs of the Island.

Table 2: AGREEMENT BETWEEN NALCOR AND EMERA	
Nova Scotia Block, 20 for 20 principle for 35 years	165 MW, 1,000 GWh
Additional power for 24 years	Up to 1,800 GWh annually
Maritime Link 500 MW	$1.8 Billion
Emera invests in Transmission line	35% of $2.6 B = $910 M
Nalcor shares with Emera in cost overruns of Maritime Link	50/50 split of overruns not included in rate base
Maritime Link key to FLG	ML makes project national
Penalties for delay of power	Possible

17

The Muskrat Falls project is to be constructed by Nalcor, a non-regulated Crown Corporation, which will in turn sell the power through a power purchase agreement (PPA) with its wholly-owned subsidiary Newfoundland and Labrador Hydro. The PUB will not be given an opportunity to test the prudence of expenditures but will simply take the PPA prices as a given. The rates to be charged are as yet unknown.

Nalcor has recently announced that the costs of Muskrat Falls are likely to be higher than projected and that some delay can be expected in the 2017 completion date. This could result in claims from Nova Scotia for breach of contract.

5.0 Similarities

5.1 The Role of Exports

Nalcor Energy has claimed that lucrative energy markets are available in the United States and in Canada for energy from Muskrat Falls. Yet the returns received by Hydro Quebec and other Canadian electricity exporters to the US have declined substantially. The National Energy Board (*Canada's Energy Future: Energy Supply and Demand Projections to 2035*, page 18) discloses that export revenues per kWh dropped from 6.8 cents in 2008 to 3.3 cents in 2012. Over the same period, Manitoba Hydro's export revenue fell from $625 million to $363 million, for about 30% of their energy output (Graham Lane, Frontier Centre for Public Policy at http://www.fcpp.org/files/5/PS153_DamNation_JN04F2.pdf ,page 11). This downturn in export prices has caused great concern in Manitoba, which is undertaking major investments in generation and transmission, focusing on Keeyask, Conawapa, Bipole III and new lines into the United States.

Export markets play a big but different role in each case. Manitoba Hydro has enjoyed large export revenues and wants to build upon them and take advantage of the opportunities in the MISO (Midcontinent Independent System Operator) region. Their business plan is aimed at capitalizing on MISO load growth and coal displacement. Also the export outlook is enhanced by renewable portfolio standards and by potential carbon pricing legislation. The danger is that domestic consumers will subsidize the cost of exported power. Concessionary rates to industrial customers have the same impact.

Newfoundland and Labrador has not experienced large export revenues because of the one sided contract with Quebec, which limits our revenues to $127 M annually, compared with $363 M for Manitoba. Notwithstanding our past experience with export revenues Nalcor is using its relationship with Emera to build an alternative route for its energy exports. Strategically the Maritime Link with Nova Scotia plays an important role in convincing the federal government that they should put a loan guarantee in place as promised during the last federal election. Without Nova Scotia the guarantee would not have happened. The guarantee enables us to borrow at 3.8%, the borrowing rate of the federal government.

The long standing impasse with Quebec over the Churchill contract and barriers to wheeling through Quebec play a big role in the background to the project. By building Muskrat Falls we are telling Quebec we don't need them; we can find access to markets by going around them. This is short sighted. Building the Maritime Link does not create transmission capacity to market other power, such as that from Gull Island or from the Upper Churchill, when the 65 year contract terminates in 2041. At 500 MW capacity, the Link is sized around the surplus from Muskrat Falls. Muskrat Falls power will be expensive to build and we would be better served by finding a lower cost bridge to 2041.

5.2 Water and Water Management

Increasing dependence on hydroelectric power may be risky. One of the risks is that of putting too many eggs in the same basket. Some greater diversity of energy sources may be beneficial. Another risk is that Mother Nature may withhold the rain. Droughts have occurred in the past and their occurrence must be factored into risk management, along with other vagaries such as wind, snow and ice.

In Newfoundland and Labrador we experience the same risks but we also must deal with the control which Quebec exercises over our exports and also over the flow of water from the Smallwood Reservoir, which stores water for Churchill Falls. This control comes from the ironclad 65 year contract which allows Hydro Quebec to manage the flow of water from the reservoir into the Lower Churchill area. Nalcor maintains that this is not a problem. Others, including the author, believe that this is a sleeping giant. Last summer Hydro Quebec filed a case before its courts to test the extent of its management control over the flow of water from Churchill Falls.

5.3 Subsidies

Ratepayers in Nova Scotia will enjoy access to Muskrat Falls power at a small fraction of the cost which will be borne by NL ratepayers. A major difference between the two provinces is that Manitoba uses export revenues to reduce costs for domestic customers. Nalcor has made no such commitment. While the export revenues are unlikely to be large they should be used to reduce the burden on local ratepayers.

Another important driver in NL is the growth of the mining industry in Labrador. Historically mining companies in Labrador have supplied their own power by building hydroelectric systems. Today mining companies are looking to government to supply power and build transmission lines at subsidized rates. Domestic ratepayers will bear the burden of subsidized exports and energy sales to mining companies. What kind of business plan is this?

5.4 Investment of non-renewable revenues in renewable resources

The government has also stated that they want to move toward an economy based on renewable resources and that the Muskrat Falls investment is an attempt to invest in the future of hydro as a renewable resource. The fact of the matter is that the energy world has changed and we must be prepared to adjust our strategies accordingly. Just because hydroelectric energy is renewable does not make it a good investment. A better investment would be to repay our provincial debt, which is growing at an alarming rate.

5.5 Rising Electricity Rates

Both Manitoba and NL will experience a significant real increase in the price of electricity over the next 30 years. Both count on long term price stabilization to justify the large upfront investment. Short term pain for long term gain is the credo. Both provinces are counting on

technology to remain unchanged, allowing them to receive this gain, which may turn out to be elusive if the trend toward distributed power, rather than centralized power supply, continues.

Another important factor that appears to be overlooked in both provinces is the elasticity of demand or how consumers respond to price increases. Electricity demand is often seen to be inelastic in the short run. Here we are looking at sustained price increases over a long period so we can expect some adjustment in consumption. The evidence is that consumers respond to prices and this will lead to substitution of other forms of energy, including heat pumps and natural gas. It is for this reason that load forecasts are probably too high in both provinces.

Both provinces have downplayed the role of demand side management and the potential savings to consumers from retrofitting homes and encouraging a shift away from electric heat. Electric heat is a major driver of residential demand in both provinces, but particularly in NL.

All of this suggests that these megaprojects particularly if built prematurely, will experience shrinking domestic markets and may have to rely on export sales. The market outlook for such exports is cloudy, as shale oil and gas come on the market and as gas-fired generating plants exercise a greater influence over electricity prices.

6.0 Regulatory Oversight and Monitoring

Oversight on these projects is problematic in both provinces. In neither has the Auditor General performed an audit. In Manitoba the AG recused herself from the audit. In NL there are restrictions on the AG's reporting on an audit of Nalcor. If the CEO of Nalcor believes the report contains commercially sensitive information he can prevent the AG from reporting to the legislature and to the public. Nalcor does not produce quarterly reports. The CEO of Nalcor can also refuse to respond to access to information requests, with no right of the applicant to appeal his decision. The last cost estimate for Muskrat Falls was produced in October of 2012 and no report has yet been made on contractual commitments made since sanction of the project. Oversight of Crown Corporations is a major problem when governments are determined to shield their actions from public scrutiny.

6.1 Muskrat Falls and NFAT

Unlike the Manitoba PUB, the PUB in Newfoundland and Labrador is required to review and approve the capital expenditures of utilities. In the case of Muskrat Falls the Cabinet exempted the project from the jurisdiction of the Board. A colleague and I encouraged government to remove this exemption, in light of the huge magnitude of the project. This resulted in a half measure. Government gave the Board a reference to decide between two alternatives, namely Muskrat Falls or an Isolated Island alternative. The process was flawed. The submission from Nalcor was received just weeks before the reporting deadline; government extended the deadline by three months but this was not enough time for the NL PUB to do its work.

Manitoba Hydro filed its submission to the NFAT panel August 16, 2013, with a target reporting date for the panel of June 20, 2014, more than 10 months. Nalcor filed with the NL PUB November 10, 2011, with the PUB final report released March 31, 2012, less than five months to write the report.

The Class 4 cost estimates for Muskrat Falls were based on only 10% of the engineering design work having been completed so the PUB questioned whether the cost preference in favour of Muskrat Falls was sufficient to offset the imprecision of the cost estimates. They concluded that they could not make an intelligent recommendation without having access to more precise cost estimates, along with an up to date load forecast. Government denounced the PUB and threatened punitive action against them. I fully concur with the decision taken by the PUB and I regret the petulant approach taken by Government in denouncing a quasi-judicial board and preventing them from discharging their statutory responsibility.

The Government of NL sanctioned the project in December 2012 notwithstanding the negative reports of two reviews, one a joint federal provincial environmental assessment, and the second the report of the province's Public Utilities Board. The Government of Manitoba approved Bipole III and committed $1.4 B to the Keeyask project without engaging the Public Utilities Board.

The Government of NL's actions fell short of the mark in many ways. They did not allow the PUB sufficient time to do a thorough review. They refused to allow them to examine other options, including conversion of the Holyrood plant from oil-fired to gas-fired and improved demand side management. When they did not receive the endorsement of the Board they excluded them from the process, which left customers unprotected.

In Manitoba the Board has been given more time and has been permitted to examine alternatives. However Bipole III is not part of the government's reference to the Board and other major commitments were made in advance of the NFAT hearing.

Without the oversight of the Board our province is adrift in their execution of this momentous project. In Nova Scotia the UARB has full authority to review the Maritime Link and to monitor its performance. We therefore look at Nova Scotia as a model of how oversight should be conducted. We note that in Nova Scotia the proponent of the Maritime Link is an investor owned utility and not a crown corporation. What role will the Manitoba PUB play in monitoring the $20 B preferred development plan, once the final decision has been taken by government?

In NL our consumer advocate is appointed by government while in Nova Scotia the advocate is appointed by the Board. We have recommended that the Board be allowed to make the appointment or else that the appointment be made by a Supreme Court Justice. In Manitoba there is provision for intervener funding but not for appointment of a consumer advocate.

In NL the Act provides that PUB commissioners are appointed for ten years and hold office during "good behaviour", which provides a reasonable amount of security and independence. However commissioners are appointed by the Cabinet without provision for all-party participation or for judicial review.

6.2 Reliability Hearing in NL

Newfoundland experienced widespread outages just after Christmas 2013 which resulted in serious questioning of the reliability of the system. The Public Utilities Board is holding an inquiry to find out the root causes. The inquiry will deal not only with the present configuration of the electrical system but also with the system after interconnection with Muskrat Falls. At that time the power source will be a long way from the final consumer. It will flow through submarine cables along the ice-scoured Strait of Belle Isle and through mountainous areas, where weather systems are highly unpredictable and extreme. One of the questions which the PUB must address is whether the Holyrood plant will continue to be required after interconnection. If so, ratepayers will be stuck with having to pay for both power sources. If the Holyrood plant has to be kept in service then the cumulative present worth (CPW) of the two alternatives (interconnected versus isolated) becomes meaningless.

7.0 Differences

7.1 Interconnection

One of the big differences between our two provinces is that Manitoba is interconnected to the rest of North America. Presently the Island of Newfoundland is isolated while Labrador is connected to Quebec but not with the Island. The Muskrat Falls project connects the Island with Labrador and the Island with Nova Scotia. This will enable our province both to import and export power. This can only be a good thing.

Nalcor has argued that the interconnection with Muskrat Falls will create more reliable power for Island customers and that the closure of the Holyrood plant will not create a problem. They tell us we can rely on mainland suppliers in the event of outages. The fallacy of this argument is that severe weather events which disrupt power on the Island are likely concurrently to impact power systems in the Maritimes as well.

7.2 Fiscal Impact of Hydro Development in Each Province

In Manitoba, hydro development is a cash cow for government because of large revenues flowing into the Treasury from the capital tax, water royalties and the loan guarantee fee. This creates an incentive for government to embark on a high risk capital investment program. Indeed in measuring the benefits of the preferred development plan these revenues factor into the decision-making calculus. This redistribution of income from taxpayers to government can obscure the true benefits of the projects to the province as a whole. Revenues will accrue to the Treasury long before the capital assets are expensed to ratepayers.

In NL Muskrat Falls is feeding off government which is investing non-renewable resource revenues in the project, as a means to diversify the economy. Nalcor has been the recipient of the government's largesse, including ownership stakes in oil and gas fields producing in our adjacent offshore waters. Nalcor is a powerful energy corporation with interests in electricity, oil and gas and offshore construction activity and is viewed by some, but not the author, as a source of immense future revenues. The $1.2 B equity component of Muskrat Falls is coming from the Province, adding to the financial pressures arising from a growing deficit on current account. Water rentals are small and loan guarantee fees are not being charged by either the Province or the federal government.

8.0 Conclusion

Newfoundland and Labrador and Manitoba have embarked on major capital investment plans with high risk to ratepayers and taxpayers. In both provinces the regulatory process has not been allowed to function as it should. In the case of NL, Nalcor Energy is building Muskrat Falls but it is not regulated by the PUB. In fact legislation has been enacted to strengthen the monopoly power of Nalcor. This legislation limits free trade in electrical power, thereby contradicting the province's long standing position in favour of free trade in energy from one province to another (e.g., wheeling power through Quebec) and across national boundaries.

In the case of Manitoba the government is sanctioning major projects without reference to the PUB and limiting the terms of reference of the NFAT inquiry.

By sanctioning megaprojects both provinces are reducing their flexibility to adjust to changed circumstances. The long term cost of these projects may indeed be less than the alternatives now presented but the benefits will be long in coming. In light of the rising real cost of energy in both provinces it is difficult to accept the load forecasts for continuing growth, particularly with the stagnant population growth in NL and the aging of its population.

The energy outlook has altered fundamentally since these projects were conceived. New shale oil and gas reserves are creating options for electricity generation which hitherto did not exist. A fundamental reappraisal is required.

Each customer class should bear the costs which are incurred in serving them. They should not be asked to subsidize other customers, whether they be ratepayers in other provinces or states or industrial customers in their own backyard. Both provinces are embarking on energy sales which entail massive subsidies.

The governance of our energy Crown Corporations needs to be improved. Many directors have no industry experience and are appointed by Cabinet order. Nalcor produces annual reports only. While there are monthly benefits and expenditure reports on Muskrat Falls there has been no

statement of commitments since the project was sanctioned and no update on the final cost to complete.

In terms of risk NL has been successful in negotiating a loan guarantee from the federal government. However, there is a cap on the amount that the federal government will guarantee. Any cost escalation over that amount will have to be absorbed by the province. Nalcor has already announced that the budget is under pressure and many are anticipating that the NL components will rise to more than $10 B. This will amount to $20,000 per person and will more than double the provincial debt.

Both provinces have committed themselves to major hydroelectric investments through Crown Corporations which can impose a huge burden on future generations by deferring expenses for a long time into the future. In some jurisdictions the undertaking of such megaprojects would require a referendum. Where governments have a majority in the legislature they can proceed to make intergenerational commitments without appropriate democratic participation. Governments tend to identify with their energy Crown Corporations and tilt the playing field in their favour.

In the case of privately owned utilities, governments are less prone to interfere with the proper functioning of regulatory boards. My experience in dealing with Newfoundland Power is that government generally allowed the regulatory process to work without interference. In NL the consumer advocate is appointed by government and this practice can present more of a problem when the project proponent is a crown corporation rather than the private utility.

Regulatory boards exist to protect the interest of ratepayers and to ensure transparency and accountability. Governments can undermine their effectiveness by usurping their role in the approval of major energy projects. It is natural that governments want to have the final say on these major decisions but they need to ensure the full participation of citizens and other stakeholders to ensure that all options are explored in order to achieve high standards of reliability, at the lowest cost to ratepayers. Governments should allow regulatory boards to approve expenditures up to a certain level and to conduct full advisory reviews on larger projects. The Manitoba PUB has no authority to review capital expenditures and in NL such authority is often removed by Cabinet order.

What are the attributes of a proper, best practice regulatory review? Citizens need to have greater opportunity to learn about such large projects through a transparent process where cross-examination of witnesses can take place and where citizens can participate through a consumer advocate who can raise questions on their behalf. Public utility tribunals need to have independence, integrity and expertise and be able to operate in a transparent fashion. Commissioners should be appointed through an open competitive process which allows for confirmation either by an all-party committee of the legislature or by a panel of judges, with guidelines established in legislation. Commissioners should be appointed for a term, such as ten years, and should serve under good behaviour. This means they should be protected from

capricious political decisions. The PUB should play a role in monitoring projects and should have the authority to examine the prudence of expenditures, meaning that if they are not "prudent" then the utility will not be allowed to include them in its rate base. Such is the practice in Nova Scotia, where the Utilities and Review Board (UARB) is vigilantly monitoring the $1.8 B Maritime Link.

Citizen and stakeholder participation should be encouraged by allowing boards to approve intervener funding so that groups can conduct research and offer new information to the board. Such intervener funding is available in Manitoba but not in Newfoundland and Labrador. Each province should provide for a consumer advocate to represent ratepayers. The NL model is not a good one because the consumer advocate is appointed by government, generally for short terms or for a particular hearing. The Nova Scotia model, which allows the Utilities and Review Board to make the appointment, is a better model, which could be improved by providing for confirmation by an all-party committee or by a panel of judges.

Barriers to access to information should be removed. Crown Corporations should not be allowed to withhold information on the grounds that it is commercially sensitive, without the right of appeal. An independent freedom of information commissioner should make the final decision, not a Minister and not the Crown Corporation's CEO. The Auditor General should be mandated to audit without fetter. In NL the AG cannot report to the House of Assembly on his findings if the CEO of Nalcor believes the report contains "commercially sensitive" information.

Since I have retired as chair of the PUB I have worked with a University based organization known originally as the Public Policy Research Centre and now as the Harris Centre. It is similar to the Frontier Centre for Public Policy. Its role is to disseminate information and research to encourage public policy dialogue. The FCPP is a very effective centre and an interesting model which has attributes which should be emulated across the country. It is independent of governments, of universities and of other vested interests. It has the ability to enlighten the public as to the need for better practices in public utility regulation to rebalance the relationship between citizens and the crown corporations which they own but do not control.

In the face of flawed public policy there is no better solution than direct citizen participation which is what the FCPP accomplishes. We may never achieve the Athenian model of direct democracy but we can work to build more effective public institutions. Social media can play a big role in reducing the democratic deficit. Ultimately we need to challenge governments to do the right thing and to create an open environment by enhancing transparency and accountability. Public utility boards play an important role but they are not perfect. They can be improved. They can make information more accessible to the intelligent layperson. They are quasi-judicial in nature and can make important decisions. Their role in our society is part of the rule of law.

As both provinces move toward their next elections citizens need to demand that competing parties commit themselves to the rule of law. They should recognize that the British

parliamentary system confers a lot of power on them when the ruling party has a majority government. This does not mean that they can do what they want without measuring the risks to which they are exposing taxpayers and ratepayers. Citizens must demand better government and greater participation to ensure that future generations are not burdened by flawed decisions. We must act now.