

IS THE TIME RIGHT FOR MUSKRAT FALLS?

Presentation to Rotary

March 22, 2012

by David Vardy

Outline

How I became involved

Drivers

Advantages

Risks and risk sharing

Concerns

Process

Decision-making

Should not be a partisan issue

**Muskrat Falls is a huge
public policy issue**

**Should not be a
partisan issue**

**Will impact hugely on
our children and
grandchildren**

Comparators?

- **Commission of Government**
- **Union with Canada**
- **Transition from church to state run schools**

Phase One – Muskrat Falls, Labrador Island Link and Maritime Link

Muskat Falls Generation

- 824 Megawatt hydro-electric facility
- Two dams, one powerhouse
- 60 km reservoir
- Construction start 2011; in-service late 2016
- Construction cost \$2.9 billion
- Ownership 100% Nalcor

Labrador-Island Transmission Link

- 900 MW capacity
- Muskrat Falls to St. John's area
- 1,100 km, including 30 km under Strait of Belle Isle
- Construction start 2012; in-service late 2016
- Construction cost \$2.1 billion
- Ownership 71% Nalcor, 29% Emera

Maritime Transmission Link

- 500 MW capacity
- Includes 180 km undersea link from Cape Ray NL to Cape Breton NS
- Construction start 2013; in-service late 2016
- Construction cost \$1.2 billion
- Ownership 100% Emera



- Labrador – Island Transmission Link
- Maritime Transmission Link
- - - Existing AC Transmission Lines
- AC Transmission – Muskrat Falls to Churchill Falls
- Proposed Expansion of NS – NB Interconnect
- ~ Subsea component of link

My involvement

IPAC presentation January 2011-Questions

- **Strait of Belle Isle**
- **Alternative to Quebec?**
- **PUB?**

Nalcor meeting April 2011

Penney/Vardy Letter to Minister Sean Skinner May 5, 2011

Action Canada - August 31, 2011 essay

Presentation to PUB with Ron Penney

Drivers

Holyrood + Rising price of oil

Search for low and stable prices

Prospects of export sales

Economic Development

Renewable resource

Advantages

Interconnection with Mainland

Reliability

Access to export markets

Power for mining expansion in Labrador

Risks

- **Capital cost overruns**
- **Volatile oil and gas prices**
- **Changes in technology**
- **Overestimation of load growth**
- **Underestimation of load growth from emerging new industrial users of electricity**
- **Volatile electricity prices in potential export markets**
- **Changes in demography which may impact upon load growth (e.g., decline in family formation and new home construction)**
- **Changes in usage of electricity**
- **Physical risks such as ice storms and iceberg scouring on the Strait of Belle Isle.**

Risk Mitigation

The Lower Churchill Development Corporation (LCDC) was negotiated in 1979

The LCDC is owned 51% by the Province and 49% by the Federal Government

The LCDC should be pursued as a way to share both the cost of the project and its risk, including the risk of cost overruns

Concerns

PUB process?

Fundamental change in public utility regulation

Departure from cost of service

Growth in demand

Electric space heating

Cost overruns?

Options overlooked?

Concerns (2)

Time frame for planning

Long payback period

Risk sharing

Reliability issues

Joint Panel Report

PUB-Reference Question

“The Board shall review and report to Government on whether the Projects represent the least-cost option for the supply of power to Island Interconnected Customers over the period of 2011-2067, as compared to the Isolated Island Option, this being the " Reference Question".

PUB Process

Limited to two options

Original deadline December 31, 2011

Nalcor Submission received November 10, 2011

PUB requested extension to June 30, 2012

Government extended deadline to March 31, 2012

No opportunity for technical conference-leaving key players such as NP/Fortis without a forum

PUB Notice February 1, 2012

“As the Board’s review is limited to examination of these two options – the Muskrat Falls project and the isolated Island development scenario – **the review will not address alternatives such as wind power, natural gas, the role of energy conservation and demand side management, or environmental concerns, or the impact on electricity rates to end users.”**

Nova Scotia Utilities and Review Board -----

On Tue, Mar 13, 2012 at 11:11 AM, Nancy McNeil <UARB.nmcneil@gov.ns.ca> wrote:

March 13, 2012

Mr. Grant:

Receipt is acknowledged of your inquiry received on March 12, 2012, regarding the Muskrat Falls Project.

This is to advise that the Nova Scotia Utility and Review Board (the "Board", the "NSUARB") has not yet received an application from Nova Scotia Power Inc. ("NSPI") regarding capital expenditures related to energy from the Muskrat Falls project and does not know when that application might be filed. When it is filed and a hearing is scheduled, a Notice will appear on the NSUARB website and in the Chronicle Herald as well as the Cape Breton Post.

When the Board receives an application from NSPI, a hearing will be held to review the application. That review **would include evaluating other options for acquiring the required amounts of energy.**

The Board will use the latest information available regarding NSPI's application. It should be noted that the Board will be focused on the NSPI application and costs impacting Nova Scotian ratepayers. It will not be reviewing the Newfoundland and Labrador components of the Muskrat Falls project in any great detail.

Yours truly,

Nancy McNeil

Regulatory Affairs Officer/Clerk

Deregulation-New approach

“In the context of the MF development, the Island ratepayer energy requirements at the time of plant commissioning is projected to use only about 40%, or 2 TWh, of the plant’s average annual production of 4.9 TWh. While the Island’s energy requirements increase over time in line with economic growth, the early-year COS rate for MF power would be a significant burden for ratepayers in those years, as the required COS revenue for MF would be at its maximum and the power required by ratepayers would be at a minimum. To address this issue, an alternative approach to MF power pricing was developed which affords a number of advantages for ratepayers.” (Nalcor Exhibit 36)

Deregulation-Departure from Cost of Service (COS) ratemaking

Nalcor is not a regulated utility.

NLH will enter into a power purchase agreement (PPA) with Nalcor.

Rates based on PPA rates will be lower at the outset and will rise 2%/year.

Payback time will be long.

Implications of new regulatory regime

Reduced protection for ratepayers

Fundamental change in regulation

Long payback period may create financing problems

Access to financing will depend upon the form of the loan guarantee

Growth in demand

Load has been growing slowly

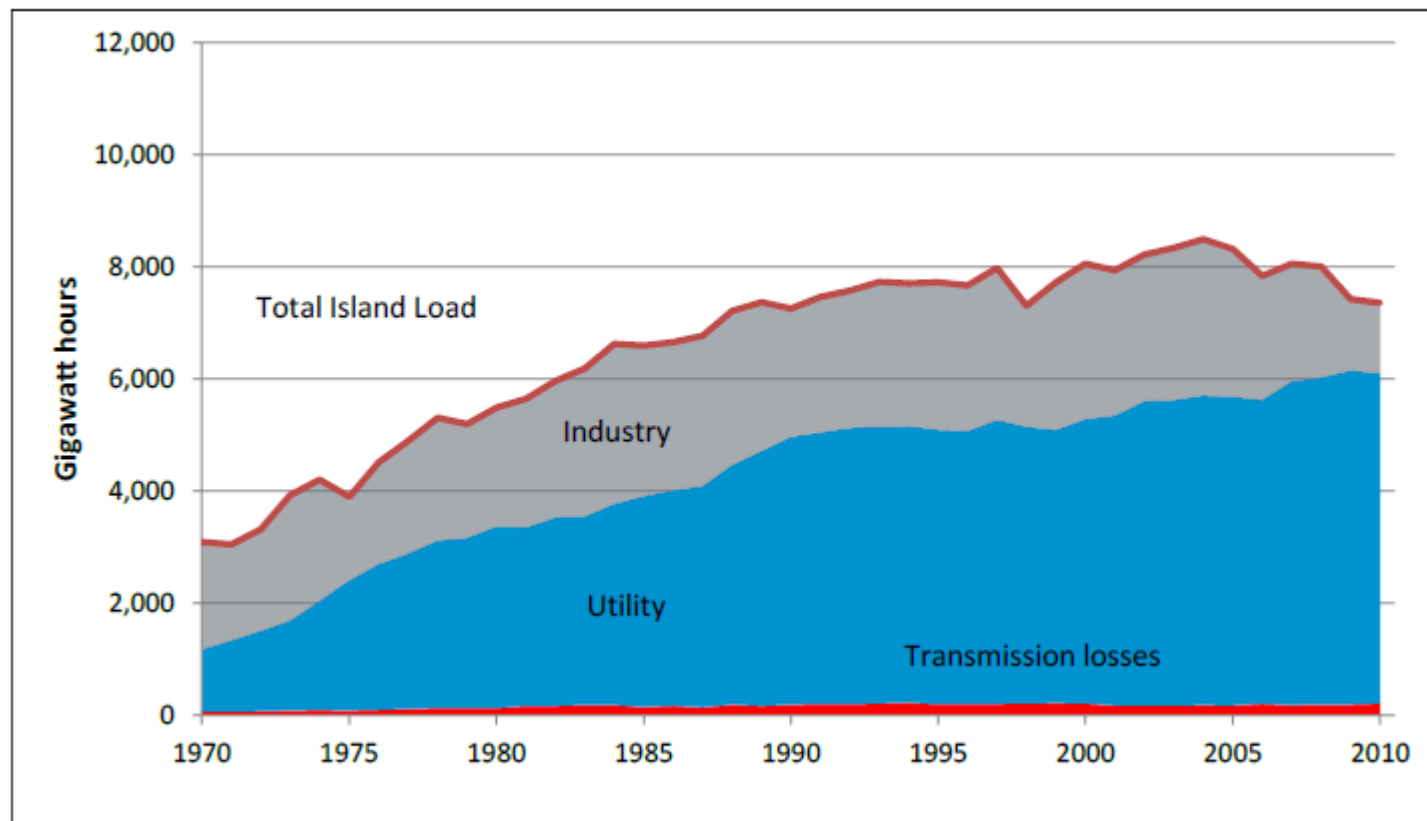
No growth in past 20 years

Domestic growth has occurred but industrial load growth dominated by closure of mills at Grand Falls and Stephenville.

Vale Inco will be a new industrial consumer

Electric space heating very inefficient but growing

Figure 1: Total Island Load (1970-2010)



Sources: (1) NLH, *Total Island Interconnected Load*, 2011 (Exhibit 58)
(2) NLH, System Planning

Future load growth

Nalcor forecasting 1.3% load growth over next 20 years

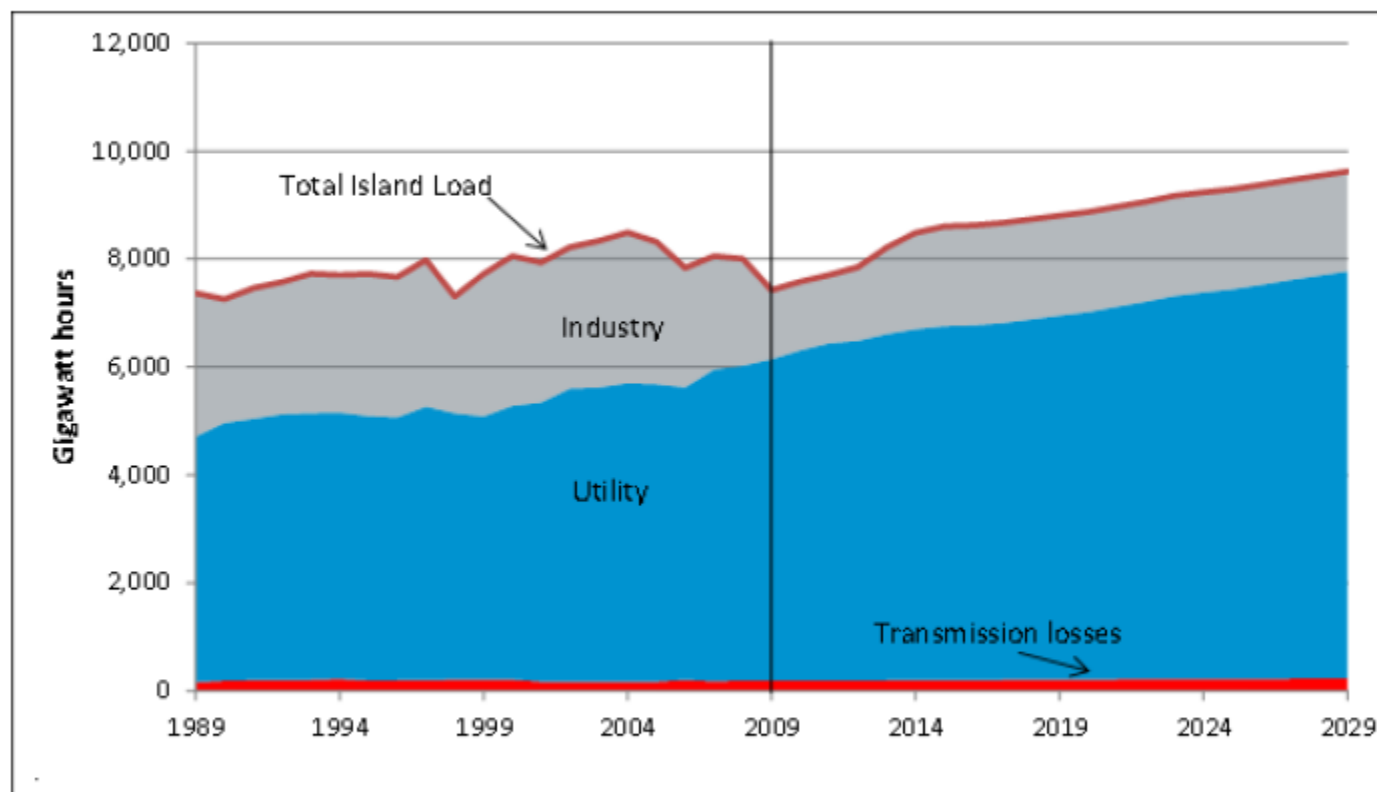
Based on Provincial economic and population forecasts

Assuming continuing high use of electric heat

Vale Inco contributes to upturn over next few years

Continuation of new housing starts even though population growth is assumed small.

Figure 5: Total Island Load (1989-2029)



Sources: (1)NLH, *Summary of Newfoundland and Labrador Hydro 2010 Long Term Planning Load Forecast*, 2010 (Exhibit 27)
(2)NLH, System Planning

Capital Costs including contingencies (\$0.564 B), escalation (\$0.543 B) and cost of capital during construction (\$1.2 B)

Generation + TL to CF	\$3.6 B
TL to Soldiers Pond + SOBI crossing	<u>2.6 B</u>
Capital cost without Maritime Link	<u>\$6.2 B</u>

**Maritime Link cost of 1.2 B+ will
increase the total project cost to at least \$7.4**

Quality of cost estimates

Class 4 subject to +50%/-30%, established by Association for Advancement of Cost Engineering (AACE)

Degree of project definition 1-15%

Class 4 estimates used for DG 2

These were the numbers used by PUB

Class 3 estimates will be used for DG 3

These are the estimates to be used by Cabinet

Unexplored Options

Natural gas – Harris Centre presentation by Dr. Stephen Bruneau on March 28

Churchill Falls - power contract ends in 2041

**Open call for independent power producers to sell into grid
-small versus big projects**

**Energy efficiency- Shifting space heating into other options
Retrofitting of older buildings**

Natural Gas (Energy Plan 2007, p. 28)

“Natural gas is in the early stages of development in Newfoundland and Labrador. To succeed, we need to gain a clear understanding of the strategic importance of landing gas in the province. Natural gas can be used in industrial processes such as oil refining, secondary gas processing, petrochemical manufacturing, and in the generation of electricity.”

Churchill Falls (Energy Plan 2007, p. 22)

“We will maintain our focus on 2041, when the Upper Churchill contract expires and the province is in the position to receive the full benefit from this resource. Between now and 2041, we will carefully plan and make decisions to ensure Upper Churchill’s success in the future, as well as organizing our current and future energy resource developments, to maximize benefits while minimizing fluctuations in our economy.”

Why no Churchill Falls Option?

In MHI-Nalcor -3 the question is posed as follows:

Question: What consideration has been given to the excess power capacity that will become available associated with the termination of the Upper Churchill Falls Agreement in 2041?

Reply from Nalcor

The answer, in part, is as follows:

“There is inherent uncertainty around guaranteeing the availability of supply from Churchill Falls in 2041 because it is difficult to determine the environmental and policy frameworks that will be in place 30+ years out. There are other issues surrounding the CF asset with respect to HQ, as Nalcor is not the sole shareholder of the Churchill Falls operation.”

Churchill Falls contract ends in 2041

This event is absolutely certain.

We should be examining options to get us to 2041.

Has there been an unknown new development since the 2007 Energy Plan?

Energy Conservation

Sensitivity analysis shows load growth is key factor.

Improved energy efficiency can reduce load growth significantly

Incentives to install alternatives to electric heat can go a long way

Reliability issues

Removal of Holyrood may reduce reliability

Long transmission lines bring risks

Avalon can be cut off from rest of Island, from Muskrat Falls and from Maritime Link

Interconnection provides alternative source of power and improves options for installing wind and other energy sources

Joint Panel Report

Joint Review Panel reported in August of 2011 with a total of 83 recommendations

The Panel raised a number of questions about the need for the project

They recommended that other options be reviewed, including natural gas, Churchill Falls and improved energy efficiency

The federal and provincial governments announced on Thursday March 15, 2012 their rejection of the Panel's recommendation for an independent analysis

Conclusion

We can continue to meet load with small increments to capacity.

There is no energy crisis.

We need to find options to get to 2041.

We should find a way to reduce risk to the Province.

We should take the time to inform ourselves better on the following options, and others:

Natural Gas

Churchill Falls

**Court Action in
Quebec**

**The Impact of
the shale gas
revolution**

**How to improve
energy
efficiency**

**Small scale
projects**

The process

PUB process has created transparency.

While the process has been limited it has accomplished a lot.

This transparent process has injected a strong element of democracy which makes all of us accountable for the final decision.

Final Decision

PUB will report March 31, 2012.

House of Assembly will not decide.

Government will decide.

Should there be a referendum?

Government will be faced with a weighty decision.

We should all inform ourselves because each of us will be responsible for the final decision.

Thank you

**Questions are
welcome**