

I have been following the muskrat falls discussions with much interested since it has been announced. I want to thank you for giving me the time to express my views on the project. These are my views only as an interested individual and citizen.

Is muskrat falls the best option financially, is it a sound investment for the people of the province?

Should we stay as an isolated island scenario or become part of a bigger system connected to the North American grid?

Let me start with the last question first! We have been isolated system since the first turbines arrived in the early 1900. We are very fortunate to have so much hydro potential on the island. We have built generating facilities as the need demanded. Forecasts of load growth are a very difficult thing to predict. You can only trend it on past growth and anticipated new load coming on line. Many times it can only be an assumption at best; there are no magic ball only indicators.

We have not seen in the past twenty years a load growth like we did from 1965 to 1985. A load growth survey was done at hydro request in, the late eighties that by 1991 we would need 1440Mws of power ramping up to 1740 by the year 2010.

Christmas day 2011 twenty years later, the system peaked at 1382Mws. That twenty years passed the 1991 forecast and we have-not reached it as of today's load. These peaks are for a short duration only, but they could be problematic if there is generator or transmission trouble.

Peak Load demands generally happen during the winter months and tend to be of short duration. Even last week on February 16<sup>th</sup> and this week with temperatures varying from zero degrees down to minus twelve the system is running generally 1000 to 1100 on the island. Total generation on the island with all existing units available is around 1800Mws. Nalcor (1600) NL Power (141) New wind at St Lawrence (27) Sky Power at Fermuse (27) Deer Lake Power and Watson Brook not being a true part of the system could in the future bring another 138Mws of power on line.. Changes in the fishery, the closing of two major plants and possibly more to come will lighten the load on the island system.

Without Kruger's generation we have approximately 1784 with it 1922. All of this power will never be available at one time, due to transmission troubles and scheduled maintenance on generators and turbines. But it does not seem that we are in any danger zone or will be in the foreseeable future.

### Holyrood Generating Station

It's a 450Mws generation station on the fringe of St John's with the entire infrastructure in place. Seventy percent of the load and seventy percent of the population exist on the Avalon. It is perfectly located in regard to being a reliable and available source of energy. Reliability and availability are two components that are vital to any power system. We are not depending on a high voltage transmission line about 1100 kilometers in length on the island and a generation source 1300 kilometers away. When Quebec's ice storm hit its transmission system in 1998 over 3000 kilometers of line came down, 300 towers and over

1100 wooden pole structures. Repairs cost over 800 million. We would not be faced with something of that magnitude, but it could be a major cost in addition to all the other debt that we will have to carry over the life of this project.

Holyrood generating facility will see its end, but it is a vital source of energy that could see us through until we enter negotiations for a new deal on the Upper Churchill.

Will we need a new transmission line from Labrador in the future? Without a doubt it has to happen. That would be our only cost if we link to the Upper Churchill and not Muskrat Falls. The hugely expensive contracts for civil work, dams, spillways, control gates, transmission lines, purchasing and assembly of generators, transformers, turbines, and staffing for the life of the plant, does make this venture questionable at this point in time, when we have all this existing at the Upper Churchill, if we have the patience to wait and use our generating facilities wisely.

Do we have the load on the island for muskrat falls power?

Emera takes twenty percent for thirty five years and we are left with about 600 to 625 Mws. Does the plant have to be generating at a high output to make it viable and cost effective? Many months of the year 600 to 700Mws is the load we have, so what do we do with all the generation we have on the island existing, even as we speak today most all the reservoirs on the Avalon are spilling, would we shut them down and spill water around them to make Muskrat viable, that seems like a poor solution. If Muskrat generation is not needed on the island because our inflows are high during the runoff season, it would seem that power would be routed through Churchill Falls in May and June at

times of low load on the island. Churchill can control storage, and Muskrat does not have the capacity to store water outside of what the reservoir can hold. Its fore-bay is its only means of control. It has to generate or spill. What price do we receive for this re-routed power flowing through the Upper Churchill from Muskrat? Will we be subsidizing the storage of water at the upper Churchill that we receive little value for, just to say that Muskrat is running at full capacity? It makes one think if any or all of these possibilities come true, then the only ones that will benefit here could be the contract companies that build the facility and its infrastructure.

In Quebec at this time there is an aggressive movement to increase generation by 2015-2020. (Sarcell/Rupert Project is 768Mws) (Opinaca Reservoir Project 150Mws) and the largest one is the Romaine Project at 1550Mws. The proposed cost is 6.5 billion for the Romaine project with twice the output of Muskrat Falls for the same price, with no outside deals with another utility. It is much closer to the major load centers on the eastern seaboard which makes it an attractive supplier.

That is a total of 2468 Mws of new generation that hydro Quebec will be bringing on line. They will be aggressively looking for customers for that power and they have been in the game a long time. If I was an industrial customer and had a choice either being supplied from hydro Quebec, who has many interconnected transmissions systems, and a long history of supplying power at much cheaper rates, or from another utility that will have two sub-sea cable systems, more expensive per kilowatt hour, with no back-up system if something major happens to the transmission system, it would not take a customer long to make up their mind which is the best option.

Are we managing our existing water system adequately?

At times of high inflows millions of cubic feet of water is spilled around generating stations because of dam safety issues. Weeks of generation are lost because water cannot be stored for future use. A review of water storage could be a useful venture.

Also gas turbines that generally run about one million dollars per megawatt are another option that could get us through peaks and high load intervals if the need should arise. These can be brought on the system quickly and they are an extremely good source of backup power.

When Bay-Despair and Holyrood Generation were built, oil was in an around a dollar a barrel. Many control gates were removed and plants became more run of the river type (run when water is available and spill what you cannot use). It made sense at the time with oil being so cheap, but not so much today with oil running 80 to 100 dollars a barrel. Can we get longer running times out of our existing systems by being better managers of our resources? Could a few small ventures and some wise choices see us through until the Upper Churchill negotiations start in the mid 2030s? Yes I believe we can, and if there is some short term pain we know it is only a temporary thing and there is light at the end of the tunnel. It would be minor as opposed to the debt we would incur. Politicians who propose this kind of borrowing make it sound as though they are dealing in smaller numbers by removing a few digits, but make no mistake about it ladies and gentlemen 6500 million dollars is a huge amount of money, and that could easily accelerate to 7000 or 8000 million for something that may not be vital at this time.

In closing ladies and gentlemen of the board, bureaucrats come and go and are mostly never held responsible for the legacy they leave behind. The people of this province are placing their trust that you will listen to all the evidence and make the best decision. It is a daunting task and you are to be commended for your efforts. I only wish you had more time to really study in detail and get all the answers, before you make your decision. I feel that when a government initiates a project like Muskrat Falls, their allegiance to it becomes all encompassing. Their effort, time, job, and political party are on the line. (They find it very hard to talk about what this does not accomplish)

I feel that costs will get out of hand on this project and the province will have no choice but to keep borrowing to complete a development that is not needed at this time.

Keep in mind that the Upper Churchill did not cost this province anything to develop; it will be a very different scenario with Muskrat Falls. The Labrador transmission line and the maritime link, plus the Labrador island link will be owned 51% Nalcor and 49% Emeria. It is structured so Nalcor will own 100% of Labrador transmission, 71% of the link to Labrador and 0% of the Maritime link.

The Labrador link will revert back to nalcor in fifty years or they can acquire it at any time. What are the implications of that, and how much would that add to the cost? If Emeria is investing 600 million in the Labrador Island link (21kilometers) at 29% ownership and their capital cost investment of the project is 1.2 billion or 20% of the capital cost, then the Martine link for (180 kilometers) or nine times the length, logic would tell you that it cannot be done without major cost overruns. Is their commitment 20% of 6.2billion or does it include the

extra funding that may be needed to complete this project if costs get out of hand.

I think that reality and illusion are intermingled here; there are too many unknowns, and questions unanswered. Until these things are brought to light this project may not be worth the risk.

Thank You

Vince Carey