

From: [George Power](#)
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Subject: Inquiry Submission
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Attachments: [Inquiry Submission Feb 2018.docx](#)
[Russell Wangersky Columns.docx](#)
[The Perfect Storm Mar 2013.doc](#)

Please accept the attached submission and appendices (3 documents) for consideration in forming your scope of work for the Muskrat Falls Inquiry

Regards

George Power

George Power, P.Eng, MBA



Submission Objective:

Determine that the Federal Government is jointly responsible for Muskrat Falls due to making the financing possible through a loan guarantee without sufficient due diligence to protect the citizens of Newfoundland & Labrador from the project consequences. This can be achieved even if federal witnesses cannot be subpoenaed through cross examining the Investment Bankers and Energy Consultants.

Federal Responsibility:

There are many possibilities for the reason behind the Federal Government granting of the loan guarantee but it does not include the possibility of having conducted proper due diligence. They were negligent on that regard and the consequences are very harsh on the ratepayers / citizens of Newfoundland & Labrador who are also citizens of Canada and have the option to move elsewhere to escape the penalty of more than doubling electricity rates.

Postulation:

Market and industrial information databases in 2013, the time period for the loan guarantee, would have clearly indicated the extreme risks for project overruns and projected the electricity markets as they exist today. It is not possible that an Investment Bank would loan money to such a project without putting a very high interest rate on the financing. This in turn would make it clear to the Provincial Government that the project was uneconomic even before the overruns in cost.

Evidence:

- The SNC Lavalin Report of April 2013. Standard banking due diligence includes interviewing the lead engineering group related to project risks.
- Electrical Market databases. Investment Banks spend millions for subscriptions to databases such as Bloomberg which analyze industries for investment. Even the publicly available information was quite compelling about the downward trends in electricity markets.
- Industry Overview databases. Similar to the market pricing databases there is also much analyze done on overall industries. At the time there were known vast overruns occurring in Canadian mega projects and particularly the Hebron and Vale projects being done in NL. All of those projects were known to be competing with any new project for skilled labour.
- TD Bank Executive, Steve Halliday, the managing director and head of global credit trading and distribution at TD quote "The benefit of the guarantee was that no one had to look at the merits of the underlying project". Source is The Telegram's Russell Wangersky columns Feb 8, 2014 and Feb 15, 2014.

- Perfect Storm brief of March 2013 exhibiting knowledge available to general public at the time. The brief evaluates a combination of vast project overruns, lower oil prices leading to high deficits and high interest rates on project due to non-participation of Nova Scotia that could result in bankruptcy of province.

Muskrat Falls Capital Cost Discussion:

The capital cost estimates and budgets were always presented in a confusing and misleading manner. In the first instance there is a difference between a cost estimate and a budget. A cost estimate should present the best analyzed evidence possible of the true expected costs for the project. A budget will present the cost estimate plus allow a stated contingency for any unforeseen overruns in cost.

One often hears about the \$6.2 Billion original cost for Muskrat Falls. Not all references to the \$6.2 B were referring to the same context. The original \$6.2 B was a budget for the project based on \$5 B for the NL component and \$1.2 B for the link to Nova Scotia. This budget included a 15% contingency for unforeseen costs. It did not include any costs for interest during construction which is a capital cost under the international rules for Generally Accepted Accounting Principles (GAAP).

The \$6.2 B cost at provincial government sanction in December 2012 was the budget cost for the NL component including a 15% contingency but without financing costs. At that point the budget had already escalated 24%. The actual estimates would have been 15% less (the contingency amount) in each case or \$4.35 B originally and raising to \$5.4 B at sanction. Neither estimate was complete without including interest during construction.

Interest During Construction (IDC):

IDC is an important real cost for a project capital cost that must be paid the same as any other supplier's cost. In this case the suppliers of the product, money, are the Banks and they have more power than other suppliers to be repaid or they will push the project into default and bankruptcy. For a long term construction project such as Muskrat Falls there are several important factors that determine the capital cost of IDC.

The length of time before the project starts to generate cash flow and start repaying the loans is one of the largest factors. Overruns in project schedule greatly increase this cost. The interest rate charged during construction is generally higher than during the stability of the completed project that is providing proven revenue streams. The longer the wait time to reach this stability period will also increase the anxiety for the lenders and thus the interest rates they charge for this period.

Brief Limitations

This brief is focused on the capital and financing risks related to project overruns and electricity markets. There were other very disturbing risks such as:

- North Spur safety
- methyl mercury
- lack of energy storage
- dependence on energy storage in the Upper Churchill Reservoir without an agreement with Quebec
- significant surplus power to be generated in the spring run off without a local market possibility or capacity on the maritime link to take to outside markets
- risk of low water flow / energy output in the winter months if Hydro Quebec has reduced winter market for electricity. Note that winter energy markets were also in decline and the only reason to flow most of the water down the Churchill River is to generate power from the Upper Churchill system. Traditional winter flows are low.

The brief does not explore other alternatives for which there were many.

Perfect Storm Brief

The Perfect Storm brief (below) projects the MF project to increase in cost from \$6.2 B to \$14 B similar to what had happened to Hebron going from an estimate of \$5.8 B when the province agreed to invest to the early 2013 estimate of \$14 B. It should be noted that the \$6.2 B MF reference includes the maritime link but does not include interest during construction because those numbers were never mentioned at the time. It does however include the 15 % contingency allowance.

A fair comparison to today's budget is \$14 B then to \$14.5 B current. The current budget estimate is \$12.7 B for NL plus \$1.8 B for the maritime link. These estimates include IDC but no contingency. If one were to substitute the 15% contingency for IDC then the Perfect Storm budget is alarmingly close to actual.

The Perfect Storm projects the possibility for the Nova Scotia government to pull out from the project which would negate the possibility for a loan guarantee and thus a rising cost for interest. This didn't happen directly but was threatened and Nalcor completely capitulated offering an additional 40% of the firm energy to Emera for the Massachusetts Hub rate which was known to be very low. Although market rates appear to be fair to a casual observer they are entirely unfair for this situation. Hydro power's main market benefit / advantage is that it can be provided when needed (spring run-off is an exception). This provides the possibility of obtaining premium rates for peak power. This benefit is lost completely when forced to sell at the Mass Hub rate.

In retrospect, a Nova Scotia pull out would have cancelled the project due to the increased cost for financing and would have stopped the project.

See separate attachment for original brief "The Perfect Storm" that was written in March 2013 and circulated to many colleagues and friends.

The Perfect Storm

Oil averages \$65 for next 4 years

Muskrat Falls goes to \$14 B cost

Nova Scotia pulls out of Muskrat deal due to cost estimate overruns

Can It Happen

\$65 oil

There are a number of analysts that are projecting a downward trend for oil for the next number of years and this storm problem only needs about 4 years to do the damage. Sixty-five dollars is more expensive than current oil sands crude in the US. It is approximately equal to \$11 natural gas in energy equivalent (not for electricity at Holyrood, that would be \$20 gas due to efficiency differences). Energy markets are shifting away from expensive oil and shale "tight oil" deposits are increasing supply. Given there will be no supply problem for a long time and based upon normal inflationary pressures and historical prices, oil should be trading in the \$65 range.

\$14 Billion Muskrat Falls

The Hebron project started a few years ago with a \$5.3 Billion estimate and it is now estimated at \$14 B and will not be completed for another 4 years so it could go higher. Every single heavy oil project is going about 100% over the original estimate. The last big hydro project done in Canada (Manitoba Hydro) went about 80% over budget. The oil industry has hired the best project managers they can find in the world and is not constrained like a Crown Corporation by salary limits or tendering problems yet they have still gone way over.

Nalcor counters that hydro projects are well known technology and they have done many in the past. This is correct but Nalcor hasn't built a large hydro project since the mid eighties and the heavy oil projects are going over mainly due to construction costs not technical risk.

NS Pull Out of Muskrat Project

Nova Scotia can legally pull out of the contract over the next year and a half. Emera is under close scrutiny with their Public Utilities Board and there is no strong political pressure to sanction the project. If the PUB considers it too expensive or not in NS's best interest, they will pull out.

The Consequences

The province is currently forecasting a cumulative deficit of about \$4 B over the next three years and that could easily go to \$6 B over 4 years with lower priced oil. This would place the Province's debt at \$14 B by 2017 and would likely result in a downgrading of the Province's credit rating which in turn will increase the cost of borrowing which will exacerbate the problem and drive the province further into debt.

If Nova Scotia pulls out of the Muskrat Falls project then the Federal loan guarantee will be null and void as it needs two province's support in order to qualify as national infrastructure. Losing the loan guarantee would be huge because it would significantly drive up the province's cost of capital for both its own needs and the capital for Muskrat Falls. It would also mean that the province hits its debt ceiling much quicker meaning that not only would credit be expensive but it may not be available at all without a bail out from the Federal Government or others similar to what is happening to some countries in Europe.

The combined debt from the province and Muskrat Falls would be \$28 Billion which is \$20 Billion more than the current situation. The Province has maintained throughout the Muskrat debate that the hydro project debt is separate from the Province's debt because of the capital assets and cash flow associated with it. This was true when the Province was in surplus and Muskrat Falls was \$6.2 B shared with Nova Scotia. NL would have to borrow \$5 B at prime with a federal loan guarantee and the cash flow from electricity sales to the 200,000 consumer rate payers would cover these costs. It is certainly not true at \$14 B and particularly without a loan guarantee. The Investment Bankers will evaluate it plain and simple as a \$28 B debt to a province with 500,000 people. They will factor in the cash flow from electricity sales but note that the ratepayers are the same as the tax payers.

The cash flow from Muskrat Falls as compared to the current situation will be as follows:

Savings from current oil consumption at Holyrood - \$100 million – Last year Nalcor spent about \$125 M on oil for Holyrood but it will still be required as a back-up in case the link to Labrador goes down and also for small peaks in need.

Electricity Sales to NL consumers - \$250 M - Last year's total revenue was about \$700 M. Taking into account an expected increase in demand and about a 30% increase in the price to consumers (not to the industrial users) will generate this approximate incremental revenue.

Additional Muskrat Falls sales - \$150 M - Without NS participation as per the Nalcor plan, the island will need 40% of the Muskrat power. Assuming the remaining 60% is sold at island industrial rates (5 cents per kwh) then it would generate approximately \$150 M in revenue.

The total incremental revenue from Muskrat Falls would be about \$500 M.

There are some incremental costs for operating Muskrat Falls. The infrastructure has to be maintained and there will be periodic ice storms and other storms that will do damage. A prudent estimate would be to allow at least 1.5% of the capital for this work or close to \$200 M per year. This will leave about \$300 M to pay the mortgage on the \$14 B (just over 2%).

Options after Perfect Storm

The province will have hit its debt ceiling which will come with the usual encumbrances of austerity in order to get its house in shape. The Federal Government could step in and bail the province out but they have to be sure that the province exhausts all options first. One of those options will be a bail out of the Muskrat debt by Hydro Quebec. In exchange for the deeds (forever) for Muskrat Falls, the Upper Churchill and Gull Island, Hydro Quebec will offer to take over the \$14 B Muskrat debt. Hydro Quebec would then sell electricity to the island customers if required or just use the alternate mainland link to sell Muskrat power. Note that the link to NS at 500 MW only amounts to 6% of the capacity of those

three projects and about 8 % of the two that will be already built (Upper Churchill and Muskrat) so they can build a link and move the Muskrat power in the other direction if they receive better rates.

What Should Happen

The best option would be to mothball this project while there is less than \$1 Billion spent. Even by Nalcor's own numbers, Muskrat Falls is now more expensive than the isolated island option. Recall that at \$6.2 B, that over 50 years, it was a better option by \$2 B. The project is now estimated at \$7.7 B plus interest during construction which puts it about \$8.5 B total. There are lots of other on island options for much less risk and it is now clear that the electricity markets are going to be soft for a long time. There is also a slowdown in commodities which will delay the construction of some of the proposed mining developments in Labrador and it is best to do large capital projects during recessions for both stimulus and better prices.

Shutting the project down at this point is unlikely but it needs to remain as an option. One of the benefits of managing a large hydro project over other mega projects is that the civil construction contract represents a large piece of the cost and the quotes should be relatively firm later this year. If there is going to be a large overrun then it should be known early and the project mothballed because it is unaffordable.

Out of the three factors for the Perfect Storm to occur, the Province only has control over two directly and needs to be ready for the third. The biggest factor driving the situation is the capital cost of Muskrat Falls. Hydro project expenses are primarily the mortgage and the higher the capital needs the higher the cost of capital so doubling the cost can triple the expense.

Nalcor needs maximum flexibility to arrange contracts and possibly even allowance to source workers and contractors from outside the country. They need to keep this project at its current cost and no higher.

The deal with Nova Scotia is very important. Nalcor may have to give extra incentives to keep them in the deal. The \$6.2 B loan guarantee could be huge in terms of interest savings.

The Telegram (St. John's)

Weekend Opinion, Saturday, February 8, 2014, p. B10

Compare - and contrast

Russell Wangersky

This will be a short column, an easy read. Most of it, in fact, is someone else's words.

Here's then-premier Kathy Dunderdale, talking about the largest project borrowing in Canadian history, the money borrowed by the provincial government and Nalcor to build Muskrat Falls.

"We just locked in \$5 billion over a 40-year term at a blended rate of 3.8 per cent - that's a historically low interest rate. The savings to electricity customers in this province, homeowners and businesses, is well over a billion dollars in today's dollars.

"We extracted tremendous value today from the markets. Our offering was over-subscribed by the market. We had a very high level of interest and uptake and we achieved the highest possible credit rating. Many large infrastructure projects do not achieve this complete level of financing certainty until construction is completed, but the objective was to obtain this certainty early, which was possible with the benefit of the federal loan guarantee.

"The order of magnitude of this financing cannot be underestimated. This bond placement is one of the largest in Canadian history. TD Securities and Goldman Sachs were our co-lead arrangers and, along with a syndicate of financial institutions, raised the \$5 billion required to fund the project.

'A robust business case'

"I want to commend the financing team at Nalcor and the provincial government for their diligence and commitment during this process. Underlying all this work is the fact that we have a robust business case and the benefits of this project are exceptional."

It's an interesting spin, but what's also interesting, when it comes to the robust business case, is that a business case was completely unnecessary.

Here's Steve Halliday, the managing director and head of global credit trading and distribution at TD. Asked about the structure of the Muskrat Falls financing arrangements by The Financial Post, he had this to say:

"The benefit of the guarantee was that no one had to look at the merits of the underlying project. ... That was a key consideration for us, not only in terms of how we rated the risk from a bank or underwriter perspective, but also in terms of making sure the investors agreed with our assessment, and counsel's assessment, as to the strength of the guarantee."

As The Post put it in its Jan. 31 story: "What financial institution would want to bear that much risk in a complicated construction project with that much potential for surprise? The strength of the federal guarantee put the bank at ease."

Sending a message

Imagine: a deal so ironclad, you don't even have to worry about looking at the project involved. You don't even have to consider it.

Words fail me.

Except for this: it says lots about the single-mindedness of governments.

It says a lot less about confidence in the strength of the project.

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The Telegram (St. John's)

Weekend Opinion, Saturday, February 15, 2014, p. B8

Here's what I actually said

Russell Wangersky

When someone writes a letter to the editor about one of my columns, I don't have any problem putting it on the same page my column runs on. Generally, I'll let the writer say their piece - that's how the conversation moves ahead.

I don't usually jump right in to respond.

But I don't feel like standing on the sidelines when what I've said is misrepresented, either intentionally or through some other misunderstanding. There's a letter about my column last week directly below this column in The Telegram's print edition - online, just look for the letter to the editor from Nalcor vice-president Derrick Sturge, headlined "Wangersky wrong about Muskrat Falls business case." If you like, read that first.

What my column was about last week was whether or not it's acceptable to essentially say how much the business world likes the business case for your pet project, when the facts are that they're so well-insulated by the taxpayer that they admit they didn't even look at the project.

Which the Muskrat Falls project's lenders have done.

As I wrote last week: "Here's Steve Halliday, the managing director and head of global credit trading and distribution at TD. Asked about the structure of the Muskrat Falls financing arrangements by The Financial Post, he had this to say: 'The benefit of the (federal loan) guarantee was that no one had to look at the merits of the underlying project. ... That was a key consideration for us, not only in terms of how we rated the risk from a bank or underwriter perspective, but also in terms of making sure the investors agreed with our assessment, and counsel's assessment, as to the strength of the guarantee.'"

The Post went on in its Jan. 31 story: "What financial institution would want to bear that much risk in a complicated construction project with that much potential for surprise? The strength of the federal guarantee put the bank at ease."

Sturge suggests I was mistaken, saying the business case was more than tested, fully checked by the federal government before the loan guarantee was signed.

All I can say about that is, right church, wrong pew. I wasn't talking about the government of Canada.

I was talking about the suggestion that lending money to the project means the project had the general support of investors, when clearly it doesn't.

I appreciate what Mr. Sturge is saying: the government of Canada is apparently more than satisfied with the details it and its advisers have examined the project. He is certainly well positioned to testify to their thoroughness.

As he puts it in his letter, the federal government had "comfort in the strength of the business case, financing structure and the engineering and execution capability of the project team."

That being said, it's interesting to consider whether the Canadian government was more concerned about the project itself, or about the ability of the project - whatever it costs - to be able to pay off any debt long before the loan guarantee gets called upon.

That's probably why the loan guarantee document contains a clause that requires Nalcor and the provincial government to sign binding agreements and pass legislation that, among other things, will guarantee that "the regulated rate for Newfoundland and Labrador Hydro (NLH) will allow it to collect sufficient revenue in each year to enable NLH to recover those amounts incurred for the purchase and delivery of energy from Muskrat Falls," including all the debt and capital costs.

In other words, the financing community hinges on the federal guarantee, and the federal guarantee hinges on a provincial commitment that, whatever Muskrat Falls costs, Hydro's customers will pay for it and regulated rates will move to whatever is needed to meet that commitment.

Is the government of Canada happy with the project, and convinced that they are issuing a guarantee that they will never have to deliver on?

Sure.

Would I be happy, if I was an investor?

Sure. I'd love to be able to invest in financing Muskrat Falls, putting whatever money I could dig up in a taxpayer-guaranteed investment paying almost two percentage points higher than you could get anywhere else.

That doesn't mean I think the business case is perfect - it means I think my risk is absolutely, perfectly zero, even if the project blows apart. I could use the extra interest I was making to try and offset the unstoppable increase I'm going to see in my electric bills.

But don't tell me that the lenders love the project, when they have already said the guarantees are so good that they didn't even bother looking at it.

What lenders like about the project is not the project itself, but the limited risk they're exposed to and the return they are absolutely guaranteed they'll make. As I said last week, they love the guarantee. And who wouldn't?

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