Date : 7/29/2012 6:17:34 PM
From : "Scott, Paul G."
To : "Bown, Charles W."
Cc : "McGrath, Rob" , "Parsons, Paul O" , "Beckwith, Judy"
Subject : FW: TRIM DOCUMENT : DOC-17014 : Export Opportunities (Muskrat Debate)
Attachment : Export Opportunities (Muskrat Debate).DOC;Export Opportunities (Muskrat Debate).tr5;

Charles,

This is the exports paper which Rob M drafted based on input from Nalcor. This input was in the form of the import and exports papers we got from Brian last week and which I forwarded on to you.

This paper is very thin on details in my view, and needs to be significantly upgraded. This is in no way a reflection on our folks. Rather Nalcor is being extraordinary uncommunicative on this file and it is obvious that Nalcor feels that giving us information is a risk to them and their goal is to manage the department and the risk.

While this comment is true for the exports paper it is doubly true for the imports paper. The information on imports is the same as the PUB submission with a few exceptions - notably the reference to a figure on the amount that the QC import option is over the MF option - however there is no basis offered for the figure and no analysis. We are told that there is more analysis (for the numbers and other issues) but that it is very difficult to grasp. Brian wondered whether we had technical folks who could understand it.

You may wish to review the papers and determine how you want to proceed. I have given my views generally on what is required (basically more detailed information)and I have no difficulty passing this on to Nalcor from Florida.

For information here is a listing of who has responsibility for the papers:

1. UC - Rob B
2. Mining - Dave L
3. Gull - Corey
4. Imports - Corey, until Rob M returns from vacation next week
5. Exports - Paul P until Rob M returns
6. Demand - Ashley and Paul P (with Walter)
7. Rates - Ashley and Paul P (with Walter)
8. Energy Plan - Paul P
9. Small Hydro - Rob B
10. Env - Corey
11. Legal - largely JUS, but Rob B is involved.

For numbers 1, 2, and 3 we gave you drafts on Friday. Regarding 4, I will send you the Friday's paper shortly; on number 5, the paper is attached to this email. For 6, the paper has been sent to your for comment. 7, 8 and 9 have been advanced to Minister (with your comments attached) On 11 we have no received a draft from JUS. We have a draft on Regie based on our notes to include in the JUS paper.

Hope this helps.

Paul

-----Original Message-----
From: McGrath, Rob
Sent: Friday, July 27, 2012 11:29 AM
To: Scott, Paul G.
Cc: Carroll, Diane F.
Subject: TRIM DOCUMENT : DOC-17014 : Export Opportunities (Muskrat Debate)

Paul,

Draft Exports paper. Let me know when you can discuss.

Rob

------< TRIM Record Information >------

Record Number : DOC-17014
Title : Export Opportunities (Muskrat Debate)

Export Markets

Department of Natural Resources
July 2012

1. Introduction

The 824 MW Muskrat Falls Project is first and foremost a domestic project to meet the province's long-term electricity needs in a least cost manner. Irrespective of the potential value of the surplus electricity that will be generated, the Muskrat Falls Project has been independently shown to be the least cost alternative to meet the province's electricity needs.

The Muskrat Falls Project will initially generate 40% of its power for domestic use. Through an agreement between Nalcor and Emera Inc., 20% of the remaining Muskrat Falls power will be delivered to Nova Scotia for 35 years in exchange for the construction of the Maritime Link, and the excess 40% of power generated at Muskrat Falls (over 300 MW) will be utilized through a combination of serving industrial demand in Labrador and selling into markets.

With respect to exporting power from Muskrat Falls to external markets, there are four key considerations to be addressed:

1. access to markets
2. price competition in those markets
3. selling potential
4. maximizing value

This paper will address these considerations and explain why Muskrat Falls power will be sold into export markets for profit.

Key Findings:

- Nalcor has secured transmission access for Muskrat Falls power through the Maritimes and into the New England market via its agreement with Emera Inc. Nalcor also has existing access to New York, New England, Ontario, and New Brunswick.
- Muskrat Falls power will be priced in the markets at the cost of transmission only which will make it competitive with other generation sources such as coal, oil, and gas.
- The New England market is forecasting steady demand growth in the coming years.
- Despite a current surplus of capacity, beyond 2015, New England is facing significant plant retirements.
- The combination of secured transmission access to markets, competitive price, and existing water management arrangements will ensure that the value of surplus Muskrat Falls power will be maximized.

2. Access to markets

Nalcor already has access to markets and has been selling electricity into these markets every day since 2009. Through a 265 MW long-term transmission reservation on the Quebec transmission system, Nalcor has access to New York, New England, Ontario, and New Brunswick markets for Upper Churchill recall power. This reservation has the capability to transmit up to 2.3 TWh of energy annually.

For surplus Muskrat Falls power, Nalcor's agreement with Emera Inc. will result in the construction of the Maritime Link which will connect the Island system with North America. The agreement also provides Nalcor with transmission rights through Nova Scotia, New Brunswick, and into New England for 50 years.

The combination of these transmission arrangements gives Nalcor access to electricity markets in Quebec, Ontario, Nova Scotia, New Brunswick, Prince Edward Island, New York, and New England. Of course, none of these agreements preclude Nalcor from seeking additional transmission capacity should it be required and is economically viable.

3. Price Competition

The New England market has a significant amount of natural gas capacity which has had, and will continue to have, an affect on the market price for electricity. Historically, natural gas has been the price-setter in the New England market as there has been a strong correlation between electricity prices and natural gas prices. Although these prices are subject to volatility, the current price for natural gas is low and as a result, electricity prices in the New England market are low as well. However, while the price will vary, there will always be a market to sell electricity.

The cost to produce the surplus power at Muskrat Falls is essentially zero. Consequently, the only costs to Nalcor to get the surplus Muskrat Falls power to market are the costs associated with transmission in other provinces. As a result, Muskrat Falls energy will be priced at the cost of transmission only, which will make it competitive to other sources of generation in the market such as coal, oil, and gas.

These transmission costs are regulated and, while the total cost will depend on the market in which the electricity is being sold, the current estimated cost to transmit to New England, for example, via the Maritime route is approximately $10/MWh.

4. Selling Potential

There are two basic market structures in the regions that Nalcor will be selling surplus Muskrat Falls electricity. These are best described as "contract" markets or "financially settled" markets.

The markets in Quebec, Nova Scotia, New Brunswick, and Prince Edward Island are contract based markets in which electricity sales are made between a willing seller and a willing buyer. Since 2009 Nalcor has entered into many contracts to sell surplus recapture energy from Upper Churchill to Nova Scotia and New Brunswick.

The markets in New York and New England are financially cleared markets in which multiple generators submit bids to the entire New York or New England system and those that are competitive "clear" the market and sell into the market at the "market clearing price". The market in Ontario is best described as a hybrid of these two types of markets.

As previously mentioned, Nalcor has secured transmission access through the Maritimes and into New England. The New England Market is operated by the Independent System Operator-New England (ISO-NE) and serves over 14 million people in six states: Connecticut; Maine; Massachusetts; New Hampshire, Rhode Island and Vermont. ISO-NE's bulk power generation and transmission system provides for more than 34,000 MW of capability.

At present, the New England market has a significant surplus of capacity in excess of 4,000 MW, and this surplus is projected to remain until 2020. However, New England is forecasted to see steady growth in demand in the coming years. Additionally, beyond 2015, New England is potentially facing significant plant retirements due to the age of the generation fleet and pending environmental regulations that may affect the region's carbon-based generation. ISO-NE estimates that between 5,800 and 8,700 MW of generation capacity will be impacted.

Nalcor has been participating in these markets since 2009 and has successfully sold power from this province to external markets since that time. The competitive price of Muskrat Falls power in these markets will ensure that it will be sold for profit.

5. Maximizing Value

Acknowledging that the fundamental business case for Muskrat Falls is to meet the province's long-term electricity needs in a least cost manner, it is also vital to achieve maximum value for the energy that is surplus to domestic needs. The alternatives for this surplus energy are to either: do nothing and forgo the opportunity to earn additional revenue for the province; or sell the surplus energy into markets for profit.

As previously discussed, given the secured transmission access and its competitive price, Muskrat Falls energy will be competitive in export markets. Based on Decision Gate 2 estimates, if Nalcor sold the surplus Muskrat Falls only in New England market, the net profit would be in excess of $325 million (2012 dollars) over the life of the project.

Additionally, existing Water Management arrangements enable Nalcor to store energy in the Upper Churchill reservoir and release it at times that offer greater value in the

markets. These combined factors ensure that the maximum value for the surplus Muskrat Falls power is achieved.

6. Conclusion

There are four key considerations to assess for the export of power from Muskrat Falls to external markets:

1. access to markets
2. price competition in those markets
3. selling potential
4. maximizing value

With respect this assessment: Nalcor has secured long-term transmission access to multiple export markets; Muskrat Falls power will be priced competitively in these markets which will ensure it will be sold for profit; and, the combination of all of these factors, along with the water management arrangements, will extract maximum value for surplus Muskrat Falls energy.