Information Note
Department of Natural Resources

Title: Consultant's Review of Nalcor-NLH Commercial Term Sheet
Issue: To provide a summary of the assessment of the Term Sheet provided by external consultants Robert Noseworthy and Power Advisory LLC (Power Advisory).

Background and Current Status:

- In September 2012, NR engaged both Robert Noseworthy and Power Advisory to assist in its analysis of the Term Sheet through a review and assessment, with a particular focus on its impact on the NL ratepayer.
- Robert Noseworthy is the former Chair and CEO of the Board of Commissioners of Public Utilities (PUB), was a Deputy Minister with the provincial government for 12 years, and is also a former Chair and CEO of the Newfoundland and Labrador Housing Corporation. Mr. Noseworthy holds an engineering degree, as well as an MBA.
- Power Advisory is based out of Massachusetts and specializes in "electricity market analysis and strategy, power procurement, policy development, regulatory and litigation support, market design and project feasibility assessment." Power Advisory has previously provided NR with advice on other aspects of the Muskrat Falls Project.
- The following is a summary of each of the consultant's findings, with more detailed submissions attached as Annex A.

Robert Noseworthy

- Mr. Noseworthy divided his assessment of the Term Sheet into four main areas, each of which will be summarized below. Overall, Mr. Noseworthy believes that many aspects of the Term Sheet will be viewed negatively by the public.
- *Departures from the Memorandum of Principles (MOP)*
    - His overall assessment is that there has been a clear shift from protecting the interest of the ratepayer as contemplated in the MOP to a focus on ensuring the financial viability of the Project in the Term Sheet. Mr. Noseworthy believes there is no benefit accruing to NLH in the early years, with Nalcor receiving all of the benefit.
    - The MOP focuses on security of supply for the ratepayer, but the Term Sheet provides no security of supply as the assets are owned by someone else.
    - The MOP focuses on least cost alternative, but Mr. Noseworthy states that Muskrat has a high per unit cost and is arguably not least cost in the early years (up to 15-20 years). Base Block payments would initially be much higher than market prices. He acknowledges that benefits may accrue over time.
    - The MOP included a clause stipulating that Muskrat much keep NLH economically whole, but there appears to be a reluctance to do so in the Term Sheet.
    - The MOP contemplated that transmission costs would be charged on the LIL which would generate revenue and help pay for the Project. The Term Sheet does not contemplate any transmission charges resulting in Nalcor and Emera getting free transmission, even though NLH is paying all the costs.
- *NLH Risk Profile*

- Under the Term Sheet, NLH has a significant and disproportionate risk profile when compared to its rewards. Mr. Noseworthy believes it is extraordinary that the risk is borne solely by NLH with no sharing of liability.
- The 'take or pay' with the economically whole concept outlined in the MOP has shifted to 'unconditional and irrevocable' obligation for NLH with an economically whole concept that does not include a cash payment in the event of non-delivery.
- NLH pays for the main assets and all financing costs but does not own anything at the end of the term. It only receives the right to negotiate with Nalcor for future power needs.
- A 50 year demand forecast up front is not normal and presents considerable risk to NLH.
- In general, Mr. Noseworthy believes that NLH assumes all the risk and receives no benefit, while Nalcor assumes none of the risk and gets all the benefits.
- Mr. Noseworthy believes something should change to ameliorate NLH's risk as per the Term Sheet.

- *Return on Equity (ROE) for Nalcor*
    - Mr. Noseworthy agrees that utilities should be allowed to collect revenue from ratepayers.
    - Mr. Noseworthy believes that Nalcor does not have the same risk as an investor-owned utility (IOU), and therefore, Nalcor's targeted ROE is extremely high when comparing it to risk profile it is assuming.
    - He is not aware of any other utility in North America that:
        - Can generate its revenue at no cost;
        - Gets transmission for free;
        - Has another entity assuming all of its risk;
        - Generates its product at no cost;
        - Is tax-exempt; and
        - Has the possibility of securing a federal loan guarantee
    - Mr. Noseworthy agrees that the ROE could be argued to be for taxpayer benefit and that this is a decision for Government.
    - He highlighted Newfoundland Power's 'excess earnings account' for any revenue above the approved ROE, with these excess earnings go back to the ratepayer. This may be something of interest to Government.
- *Oversight*
    - Mr. Noseworthy agrees that the Project can't be regulated under the current PUB system, but there has to be significant and meaningful independent oversight of the costs related to the project given the level of expenditures.
    - With the ratepayer being required to cover all costs incurred on the project, it is incumbent on the province to ensure that costs are independently reviewed and released to the public in a report.
    - Mr. Noseworthy questions the difficulty of distinguishing the Project from the rest of NL's transmission system. He also questions how long the Project can be distinguished from the rest of NL's transmission system? For the full 50 years?

- Mr. Noseworthy states that an independent engineer may be appropriate for construction, but not sufficient for ongoing operation and maintenance over the life of the Project.
- Mr. Noseworthy believes that oversight will be a main topic of the House of Assembly debate.

Power Advisory

- Power Advisory's fundamental issue with the Term Sheet is that NLH is guaranteeing a minimum return to Muskrat which "mitigates the project's risk and enables financing" while Muskrat and Nalcor enjoy the upside with no sharing of benefits with NLH and its customers.
- Power Advisory believes that this concept of Muskrat and Nalcor receiving all the benefit without sharing any benefit with NLH is a departure from the MOP and also could be "an area of focus for critics of the project."
- Power Advisory notes that there are generally two primary commercial structures used to price electricity: 1) a regulated rate of return model (currently used by the PUB), and 2) a market-based return where Muskrat and Nalcor receive the full upside but also accept the full downside risks. Power Advisory refers to the Term Sheet as an "asymmetrical hybrid" where Muskrat and Nalcor receive a guarantee of payment from NLH and its customers but does not share any upside with NLH.
- Power Advisory believes that providing a Base Block forecast as of the date of the execution of the PPA presents risk to NLH, as well as a considerable degree of uncertainty regarding the Base Block requirements over the contract term. It is not clear as to why there can't be greater flexibility for NLH to modify its Base Block purchases as it gets closer to the delivery date and it doesn't believe that such flexibility would significantly constrain Muskrat's sales strategy or result in 'appreciably lower revenues.'
- Power Advisory believes that it may be appropriate to provide greater flexibility in establishing the Base Block to avoid a situation where NLH may have an incentive to overstate its Base Block requirements to reduce the risk of Supplemental Block payments.
- Power Advisory also highlights, as a minor issue, that the Supplemental Block payments are due after the Base Block has been delivered, meaning the Supplemental Block purchases will most likely be made in December when market prices are typically higher than the annual average.
- Power Advisory generally feels as though Nalcor's ROE at DG2 is reasonable, but is more typical in a 60/40 to 50/50 debt/equity ratio (Nalcor used a 0/100 debt/equity ratio). Adding lower cost debt to the equation would increase the ROE, perhaps significantly if the federal loan guarantee is realized.

Action Being Taken:

- None. For information purposes only.

Prepared / Approved by: NR

4 October 2012

Annex A

Summary of Meeting of NR with Robert Noseworthy – October 2, 2012 10:00am-12:30pm

Subject: Mr. Noseworthy has been engaged by the Department of Natural Resources to assess the Term Sheet with a particular focus on the potential impacts on Newfoundland and Labrador ratepayers. The following is a summary of Mr. Noseworthy's review of the Term Sheet.

Mr. Noseworthy divided his issues into four main headings. They were:

1. Departures from the Memorandum of Principles (MOP)
2. NLH Risk Profile
3. ROE for Nalcor
4. Role of oversight in Muskrat

Issue 1 – Departures from the MOP

- Overall assessment is that there is a clear shift from protecting the interest of the ratepayer as contemplated in the MOP to a focus on ensuring the financial viability of the Project in the Term Sheet.
- The public optics of the Term Sheet will not be favourable and communicating some of the aspects of the Term Sheet will be difficult.
- Now is the time to address issues with Nalcor prior to going down a 'slippery slope'.
- The MOP focuses on security of supply for the ratepayer; least cost, environmentally friendly power; highlights the Energy Plan and public benefit of the Project; and optimizing NL's electricity assets.
- The Term Sheet stipulates that all the risk is bourne by NLH.
- Muskrat has a fairly high per unit cost, and arguably not least cost in the early years. Benefits may accrue over time, but Base Block payments would initially be much higher than market prices. It may be least cost over a 50 year time period, but not in the first 15-20 years.
- There is no benefit for NLH in the early years. Nalcor retains all benefits.
- Security of supply is not guaranteed – NLH has little control over the assets as they are owned by other entities.
- Throughout the Term Sheet, there is reluctance for Nalcor to keep NLH economically whole, which is different than the MOP.
- Have to be careful using the term "cost of service". In the regulatory world, cost of service is only attributable to the customer that is using the power. For example, NLH would only be paying 40% of the cost of service because it is only using 40% of the power. Instead, NLH is paying 100% of cost of service.
- MOP contemplated that the LTA would be paid by customers, one of which would be NLH, but others as well.

- MOP contemplated that transmission costs would be charged on the LIL, which would generate revenue and help pay for the Project. MOP says open and non-discriminatory access would be available at a cost. This is consistent with the rest of North America.
- In the Term Sheet, NLH pays for the entire LTA and LIL and doesn't charge any transmission costs for either. In effect, NLH pays for all the costs and Nalcor and Emera get all the benefit.
- Why shouldn't NLH charge Nalcor and/or Emera for using the LTA and LIL?

Issue 2 – NLH Risk Profile

- Under the Term Sheet, NLH has a significant and disproportionate risk profile when compared to its rewards. It is extraordinary that the risk is bourne solely by NLH with no sharing of liability.
- MOP contemplated "Take or Pay" with a concept of economically whole that could include cash payments to NLH in the event of non-delivery. The Term Sheet says NLH's financial obligations are "unconditional and irrevocable" with a right to replacement power, but no cash payment.
- NLH is paying for the main assets in full and paying off all financing costs without owning anything at the end of the term except for a right to negotiate with Nalcor in good faith for future power needs.
- NLH's risks are both financial and operational in that it must pay even if it gets no power in return and that the reason may very well be operational for which they had little say at the committee level.
- A 50 year demand forecast up front is not normal and presents considerable risk to NLH.
- Should something be done to ameliorate NLH's risk as per the Term Sheet?
- In general, NLH assumes all the risk and receives no benefit, while Nalcor assumes none of the risk and gets all the benefits.

Issue 3 – Nalcor's Rate of Return

- Utilities are allowed to collect revenue under the EPCA. This revenue (rate of return) is paid for by ratepayers and built into the costs.
- For the Project, Nalcor does not have the same risk as an investor-owned utility (IOU). Nalcor's targeted Rate of Return on Equity is extremely high when comparing it to risk profile it is assuming.
- NLH is assuming all of the risk and is also paying for most of Nalcor's return.
- Not aware of any other utility in North America that:
  - Can generate its revenue at no cost;
  - Gets transmission for free;
  - Has another entity assuming all of its risk;
  - Generates its product at no cost;
  - Is tax-exempt; and
  - Has the possibility of securing a federal loan guarantee
- Comparisons to Investor Owned Utilities and export driven power projects in Quebec or elsewhere, Nalcor is not fairly comparing apples to apples.

- Very unlikely that PUB would award a ROR at 8.4 or 9.2 or 12% on this project when reviewing the "Just and Reasonable" test for such a project and considering the lack of any risk over the entire project time horizon.
- The ROR could be argued to be a taxpayer benefit and this is a decision of Government.
- Newfoundland Power has an 'excess earnings account' for any revenue above the approved ROE. These excess earnings go back to the ratepayer. This may be something of interest to Government.

Issue 4 - Oversight

- The Project can't be regulated, but there has to be significant and meaningful independent oversight of the costs related to the project given the level of expenditures.
- With the ratepayer being required to cover all costs incurred on the project, it is incumbent on the province to ensure that costs are independently reviewed and released to the public in a report.
- Public needs to have faith in the costing, especially where they bear all the costs directly in rates.

- PUB is not likely the proper party to complete the review.
- Perhaps a hybrid system where an independent engineer would audit construction and operations costs, while a separate audit team looks at the internal costs of Nalcor and those costs not related to construction or operations.
- May have difficulty distinguishing the Project from the rest of NL's transmission system. Would need to establish that interrelation. Also, how long can you distinguish the Project from the rest of NL's transmission system? For the full 50 years?
- Either way, this will be a very big issue in the debate because it is easy to understand and hard to deny the logic behind the argument that oversight is needed.

MEMORANDUM

TO: Paul Scott, Newfoundland and Labrador Department of Natural Resources

FROM: John Dalton, Power Advisory LLC

DATE: October 2, 2012

SUBJECT: Review of Commercial Arrangements for Lower Churchill Project between Nalcor Energy and Newfoundland and Labrador Hydro

Introduction

The Newfoundland and Labrador Department of Natural Resources (DNR) has requested Power Advisory LLC to comment on the draft term sheet between Nalcor Energy (Nalcor) and Newfoundland and Labrador Hydro (NLH) regarding commercial arrangements for the Lower Churchill Project (LCP) Phase 1. This memo presents Power Advisory's review and focuses on the implications of the commercial arrangements to NLH ratepayers and assesses whether they represent a reasonable balancing of risk and reward. The term sheet expands upon the Memorandum of Principles (MOP). DNR is also interested in whether the term sheet deviates from the MOP. Power Advisory's review considers the MOP, but focuses on the reasonableness of the deal provided to NLH and its customers.

Assessment of Commercial Arrangements

One of the fundamental issues that Power Advisory has with the commercial arrangements is that NLH guarantees a minimum return to Muskrat Falls (MF) which mitigates the project's risk and enables financing. MF and Nalcor are provided with opportunities for additional upside with no apparent sharing of this benefit with NLH and its customers.[1] There are two primary commercial structures that could be employed for LCP: (1) a regulated rate of return based model (recognizing that for financing purposes the Public Utilities Board would have limited oversight regarding the ratemaking for the project) where MF and Nalcor are guaranteed a minimum return except under gross negligence, but in turn have their upside limited, i.e., customers benefit from the lower costs or higher value; and (2) a market-based return where MF and Nalcor receive the full upside, but accept down-side risks. These are the two fundamental commercial constructs that are available in the electricity sector.

The second alternative isn't commercially viable under current market conditions, Nalcor's financial resources and the LCP costs. However, it is a model of possible risk sharing. The

[1] This is generally consistent with the treatment in the MOP. However, the MOP had Deficiency and Surplus Accounts which balanced trading gains and losses over time. Given the greater potential for losses in the early years of the project this ensured that NLH was made whole in the future when the project costs (as reflected by the Base Block price) are more likely to be below the market value of the MF energy. The commercial arrangements outlined in the term sheet allow MF to be financed under reasonable terms based on the guarantees provided by NLH and its customers, yet provide Nalcor with the upside from higher market prices in the future. Power Advisory recognizes that with load growth in Newfoundland the volumes available for export would decline.

framework outlined in the draft term sheet is an asymmetrical hybrid. It provides for a guarantee for MF and Nalcor from NLH and its customers, but could be viewed as not providing reasonable compensation for this guarantee given that NLH doesn't share any of the upside. This is a departure from the MOP which had a balancing account. More importantly, we expect that it could be an area of focus for critics of the project.[2] There are other issues with respect to the term sheet which exacerbate this issue.

In particular, the volumes for the Base Block which provides the guaranteed cost recovery are established as of the date of the execution of the Power Purchase Agreement (PPA). Consequently, NLH bears the risk of differences between its actual and forecast requirements at the time of PPA execution. Furthermore, there is a considerable degree of uncertainty regarding NLH's actual Base Block requirements over the contract term driven by changes in customer load and energy output from NLH's hydroelectric and other renewable energy facilities. If its requirements are higher than the Base Block volumes, NLH is able to request Supplemental Block energy for which it pays the net-backed market price. If its requirements are less than the Base Block, NLH bears the risk of differences between the cost of Base Block energy and the net sales price realized by MF for such unutilized Base Block energy. This is generally appropriate. However, because NLH is able to reduce its requirements for Supplemental Block energy by increasing its Base Block there may be an incentive for NLH to overstate its Base Block requirements. When NLH overstates its Base Block requirements its net cost is the difference between the Base Block rate and the market price. On an aggregate basis this is negligible given that the total Base Block revenues are set to provide MF with its target rate of return and MF would be selling additional volumes at a market-based rate anyway.[3] With the LCP costs amortized over a larger volume the net effect of overstating the Base Block requirements is largely to reduce the risk of Supplemental Block purchases. Given the affiliate relationship between NLH and MF and Nalcor, it is by no means clear that NLH would engage in such behaviour. However, the incentive to do so suggests that greater flexibility in establishing the Base Block requirements may be appropriate and that the ultimate agreement executed by the parties would be improved by providing clearer incentives for efficient behaviour when nominating and scheduling energy from MF.

While such a change would limit the ability of MF and Nalcor to attempt to sell a portion of MF Residual Block energy forward to provide greater revenue certainty, it isn't clear why there can't be greater flexibility for NLH to modify its Base Block purchases as it gets closer to the delivery date. To the degree that such forward sales result in greater market revenues allowing this greater flexibility would reduce MF's revenues. However, Power Advisory doesn't believe that such additional flexibility would significantly constrain the sales strategy for MF output or result in appreciably lower revenues. To the degree that it did the Base Block rate could be set to yield a nominally higher return.

A minor issue with the Term Sheet is that Supplement Block Payments are due after the Base Block for the Operating Year has been delivered. Therefore, the prices for the Supplemental Block will be based on market prices during this period. With the Operating Year ending

[2] The ROEs projected to be earned by MF are now known. They provide valuable context regarding the reasonableness of the risk sharing that wasn't previously available.

[3] One possible incremental source of value to MF from providing a more reasonable forecast of Base Block volumes is the higher value obtainable from offering such energy when prices are higher. However, this presumes that MF or Nalcor Energy Marketing would be able to time the market by so doing secure higher value.

December 31, the Supplemental Block purchases will most likely be made in December when market prices are typically higher than the annual average.

Assessment of Project Return on Equity

DNR also requested Power Advisory to assess the reasonableness of the return on equity (ROE) assumptions that underlie the MF Base Block pricing. Nalcor has indicated that MF is projected to realize an 8.4% IRR (also ROE) from Base Block sales to NLH assuming a 100% equity capital structure and the DG2 costs. When export sales were considered a 9.2% ROE was realized. This is a reasonable ROE for a utility project where customers bear market (pricing and volume) risks as in the proposed commercial arrangements. However, such an ROE is typically accompanied by a 60/40 to 50/50 debt/equity ratio, not the 100% equity that was assumed when evaluating this return. Adding lower cost debt to the capital structure would as acknowledged by Nalcor decrease the revenue requirements and increase the ROE and Nalcor suggests that the plan is now to use some debt to finance MF. ("Subsequent developments and review of financing strategy, in particular with respect to a potential to maximize the federal loan guarantee, indicated that MF leverage would be feasible to minimize required ratepayer costs.") Everything else remaining equal, adding lower cost debt would increase the ROE and with a federal loan guarantee the ROE increase is likely to be meaningful.

Equally important is the risk allocation under these commercial arrangements and corresponding ROE. To enable the project to be financed under reasonable terms much of the project's market risks are placed on NLH's customers given that NLH has an obligation to pay for the projects' total capital and operating costs under the Base Block including a return on equity sufficient to achieve the debt service coverage ratios required for financing. The 9.2% ROE that was projected to be realized by MF from sales of Base Block energy and exports at market rates is in line with the ROEs allowed electric utilities by Canadian regulators. While MF is at risk for return between 8.4% to 9.2%, it is effectively guaranteed a 8.4% ROE and is also able to realize higher ROEs to the degree that market revenues are higher than forecast or MF's output is greater than forecast.