

Date : 1/11/2012 7:20:32 AM  
From : "wade locke"  
To : "DawnDalley@nalcenergy.com" , "wlocke"  
Cc : "GBennett@nalcenergy.com" , "Bown, Charles W."  
Subject : RE: Information requested.

Thanks  
wade

-----Original Message-----

From: DawnDalley@nalcenergy.com [mailto:DawnDalley@nalcenergy.com]  
Sent: January-11-12 7:18 AM  
To: wlocke  
Cc: GBennett@nalcenergy.com; cbown; L Locke  
Subject: Re: Information requested.

Wade

I'll be in touch once I chat with the folks this morning and I'll send any clarification or we'll discuss at 2pm via phone.

Dawn  
Dawn Dalley,  
VP, Corporate Relations  
Nalcor Energy

This Email was sent from a Blackberry wireless handheld. The Email, including attachments, is confidential and proprietary. If you are not the intended recipient, any redistribution or copying of this message is prohibited. If you have received this Email in error, please notify us immediately by return Email, and delete this Email message.

----- Original Message -----

From: wlocke  
Sent: 01/11/2012 06:32 AM NST  
To: Dawn Dalley; wlocke@mnn.ca  
Cc: Gilbert Bennett; cbown@gov.nl.ni; llocke@  
Subject: Re: Information requested.

Dawn

A quick review of the information, leads me to ask the following. With respect to the 5% (question 1), I thought I was asking what would the price have to be if the 5% number was applied to the 25% equity calculating instead of the 8% number, assuming 75% were funding with debt in the 7% range.

This appear to be using 5% applied to the whole project costs instead of the 12% you used with the 100% equity case. Am I correcting the information correctly? Is someone available at 2:00 or later today to help me understand what response 1 really means? I can call then. I just need a number.

The response to 4 is based on the response to 5. That is, given the \$2.1 B identified in response 5, and the amount of gas in 3, you would need to purchase gas for \$5.75 per mmbtu's to meet the island needs with natural gas from LNG. Is that correct?

Another question, if the pipeline costs and platform adjustments and other associated costs were, for purposes of illustration, \$1.291 b, does that imply that to use domestic gas, you could pay \$5.75 per mmbtu for gas from say Husky if it were available and have the same impact on domestic rates as the Muskrat falls alternative?

What would be the GHG implications of using this volume of gas versus hydro? Is that number known?

Finally, for the price scenario, is the increase relative to current prices or relative to some price scenario that grows relative to current residential prices?

sorry for the additional questions.

cheers  
wade

thanks  
wade

Quoting DawnDalley@nalcenergy.com:

- > Wade
- >
- > Here is the remaining information. Please let me know if you need
- > anything else or require clarification or background on these points. Our
- > folks are around to answer any questions.
- >
- > Thanks...Dawn
- >
- > 1. What is the differential in rates if the province's return on
- > equity/IRR is 5?
- >
- > If the target internal rate of return for the Muskrat Falls investment
- > analysis in DG2 were 5%, versus the 8.4% indicated at DG2, the power
- > purchase price to NL Hydro would decline from approximately \$76/MWh to
- > approximately \$40/MWh (both 2010\$ escalating at 2%). The DG2 case assumed
- > 100% equity financing for Muskrat Falls for analytical purposes. The
- > current intention is that the Muskrat Falls project investment will be
- > leveraged with debt capital consistent with accepted utility practice
- > which is expected in turn benefit from a federal loan guarantee. It is
- > important to note that reducing the IRR to 5% could have a significant
- > impact on Nalcor's ability to debt finance the Project and benefit from
- > the FLG.
- >
- > 2. What would the price of electricity have to be to flatten residential
- > demand starting in 2017?
- >
- > Based on our electricity demand model, to offset forecasted utility
- > growth, Island retail residential electricity prices would need to be
- > about 75% greater than the current NL Hydro rate projection that includes
- > the Muskrat Falls and LIL investments. If retail residential rates were
- > set at 75% higher than what we expect residential rates to be, the cost
- > preference for furnace oil would generally be maintained at 35-40%
- > compared to electricity and this would potentially swing customers away
- > from electric heat. There is only one period in our recent history where
- > noticeable conversions to oil heat occurred, that was in the mid to late
- > 1990s when the price of furnace oil was relatively stable and at a low
- > point. Whether or not this relative price difference would invoke a
- > similar and persistent switch back to oil heating is really outside our
- > historical experience. There are other factors which could conceivably
- > limit the response including convenience and conversion costs etc.
- >
- > Outside of these caveats, our models indicate the reduction in residential
- > electricity requirements resulting from this price shock would be
- > sufficient enough to offset the load growth from forecast increases in
- > residential customers and general service load, i.e. flattened utility
- > load.
- >
- > It should also be noted the 75% higher price level is less than what the
- > price elasticity on our average use model (-.32) would imply, to achieve
- > this result. This is because the price elasticity estimate calculated for
- > our residential average use model does not account for the average use
- > impact of a reduced penetration rate of electric heat in new homes nor the
- > conversion rate impacts on the existing EH market share. Both the
- > penetration and conversion factors are significant levers affecting
- > average residential usage and are in addition to the direct price
- > elasticity impact we have quoted.
- >
- > See attached file which explains the variables in our statistical
- > regression equation that we sent to you earlier.
- >
- >
- >
- >
- >
- > 3. Please provide the gas volumes annually for the isolated island case?
- > See attached info.
- >
- >
- >
- > 4. How low would the price of gas have to go on an equivalency basis to
- > eliminate the differential between Isolated Island and Interconnected
- > Island?
- > In answer to your question, we assumed there would be a new CCGT gas
- > plant, a regas and storage facility onshore and related infrastructure
- > required to deliver the gas to the plant. We back calculated the gas
- > price from our model.
- > Based on this analysis, the price of gas delivered onshore NL would have
- > to be \$5.75 per mMBTU starting in 2017 (escalation correlated to market
- > forecast to 2025 and CPI thereafter).
- > Our view is that any contract would be priced at our next best alternative
- > in the isolated alternative, as we discussed, so this is a theoretical
- > analysis to answer your question.
- >

- > 5. What is cost of a new build CCGT to replace HR and run on Natural Gas?
- > This would include:
- > LNG Regas and Storage Facility, including: Cost: \$1291 million (Dec 2016\$)
  - >    • Docking facilities
  - >    • Pipeline to storage
  - >    • Cryogenic storage facility
  - >    • Regas facility
- > 3 x 170MW CCGT plant (7200 mmBTU per GWh) Cost: \$841 million (Dec 2016\$)
- > In-service December 2016.
- >
- >

This electronic communication is governed by the terms and conditions at [http://www.mun.ca/cc/policies/electronic\\_communications\\_disclaimer\\_2011.php](http://www.mun.ca/cc/policies/electronic_communications_disclaimer_2011.php)