

REQUESTOR NAME: Clean Energy Association of B.C. (CEBC)

INFORMATION REQUEST ROUND NO: 2

TO: BRITISH COLUMBIA HYDRO & POWER AUTHORITY

DATE: October 6, 2011

PROJECT NO: 3698640

APPLICATION NAME: **Dawson Creek/Chetwynd Area Transmission Project (DCAT)**

1.0 Reference: Exhibit B-1, Section 3.2.3, Alternative 2 – 138 kV Transmission Line, and Exhibit B-5, response to BCUC IR 1.54.4 Attachment 1

1.1 Section 3.2.3 states that “The existing 138 kV line (1L358) would remain in service under alternative 2... The addition of a new 138 kV transmission line constructed on double circuit structures...”

However, the caption in the Excel model attached to BCUC 1.54.4, sheet ‘Alt2’, line 4 reads “*SLS-BMT double circuit 138 kV... \$40,500*”.

Is the spreadsheet costing a single circuit or a double circuit for \$40.5 million? Please clarify.

1.2 The caption on line 5 of the same spreadsheet reads “*BMT-DAW double circuit 138 kV... \$16,500*” but this 12 km section is identified as “*High capacity*” in Figure 3-2 of Section 3.2.3.

What does “High capacity” mean? How is this achieved? Is this segment of line constructed with a larger conductor than the 60 km section from SLS to BMT. Why is this section done differently?

2.0 Reference: Exhibit B-5, response to BCUC IR 1.54.4 Attachment 1, estimates of line losses

The spreadsheet “Energy Losses” shows the total line losses in MWh for each of the two alternatives for each year until F2041. By F2027, these losses are amounting to over 20 average MW for the 230 kV alternative and 25 average MW for the 138 kV alternative.

2.1 Please provide an additional sheet showing the carrying capacity (in MW) and the average loading on the lines for each alternative by year, and also the percentage of losses being assumed in the loss calculations.

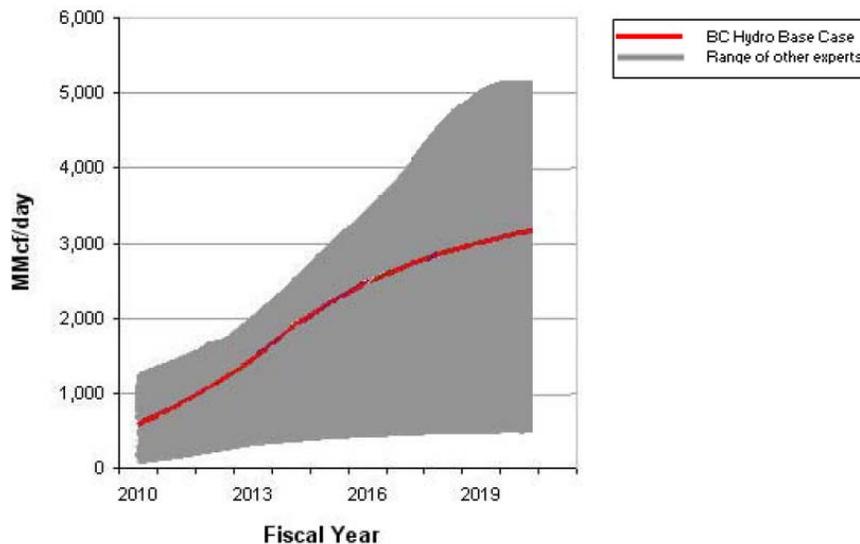
2.2 If the 138 kV alternative were constructed as a “High capacity” line for its whole length, what effect would that have on the line losses? Please quantify the change in the calculation of losses.

2.3 What effect would this “High capacity” construction have on the capital cost? Please quantify and explain the difference in capital costs.

2.4 Why does BC Hydro assume that \$129/MWh is the avoided cost for the purpose of evaluating energy losses? This is the adjusted cost of “Firm” energy from the 2008 Clean Power Call but it ignores all of the additional “non-firm” energy that is simultaneously acquired at a much lower price. It also ignores the fact that saleable Renewable Energy Certificates are also simultaneously acquired and these can greatly reduce average net cost of the acquired energy to the ratepayers. Why are none of these factors taken into account in estimating the avoided cost? Why has this \$129 cost not been adjusted to take into account decreases in prices for wind turbines due to technology advances and increases in manufacturing facilities worldwide?

3.0 Reference: Exhibit B-1, Appendix B, System Planning Report, page 81 to 87 of 100, Producer Load Forecast

The chart below, taken from page 84 of 100 shows the range of gas production forecasts for the Montney region.



On page 82 of 100, BC Hydro states that “...there have been recent receipt of inquiries for new load, requests for interconnection studies, public announcements on proposed gas developments, and collaborative government-gas industry efforts aimed at helping the province meet its GHG emission targets. Therefore, BC Hydro believes that there is a n increasing probability that future gas production and associated electrical load will be high than the current forecast than lower.”

- 3.1 Which of the 5 sub-regions are represented in the forecast shown in the above chart? Does it include all of Dawson Creek, Groundbirch, Chetwynd, GMS, and Fort St. John, or only some of them? What portion of the total regional production is included in the forecast?
- 3.2 Please provide the chart data in table form.
- 3.3 Since we are now 2 ½ years into this forecast period, please provide the actual production rates for F2010, F2011, and the first half of F2012.
- 3.4 Since we are now 2 ½ years into this forecast period, does BC Hydro now have a more up-to-date forecast for the future? Please provide the latest BC Hydro forecast and an updated range of forecasts as depicted in the chart.
- 3.5 What is the total amount of work energy that the gas industry will require to drill, fracture, transport and process the amount of gas production shown in BC Hydro’s “Base Case”? Please give the response in total MWh per year, and also MWh per MMcf. Please include this in the table provided for IR 3.1.
- 3.6 Please also include in the table what portion of the total work energy (in MWh) BC Hydro is forecasting to provide in each year of the forecast period?

4.0 Reference: Exhibit B-1, Section 2.6.1, Energy Objectives, GHG reductions

Section 2.6.1 sets out the government’s energy objectives that BC Hydro is required to pursue, including:

“(a) Reduce B.C. greenhouse gas (GHG) emissions pursuant to the legislated targets...” and

“(b) Encourage the switching from one kind of energy source or use to another that decreases greenhouse

gas emissions in British Columbia...” and

“(c) Encourage Economic Development and the Creation and Retention of Jobs...”

Accordingly, BC Hydro is required to encourage economic development, while also encouraging energy switching to reduce greenhouse gases.

- 4.1 If no electrification of the gas industry’s work energy (as identified in the response to IR 3.5 above) were to take place, then how much greenhouse gas would be emitted by serving that work energy with fossil fuels?
- 4.2 Given the amount of work energy that BC Hydro is forecasting to provide (as identified in the response to IR 3.6 above) how much will greenhouse gas emissions be reduced if that electrical service is provided from clean renewable sources?
- 4.3 If BC Hydro were to aggressively pursue the maximum amount of work energy electrification, what would be the limit of the possible electrical load, and what reduction of greenhouse gases could this result in?

5.0 Reference: Exhibit B-1, Appendix B, System Planning Report, pages 61 to 65 of 100, Dismissed Alternatives.

Of the alternatives considered and dismissed by BC Hydro, four of them appear to be other transmission alternatives, and two of them are described as “IPPs and local generation opportunities.” These latter two alternatives were identified as:

Wind Generation – which was dismissed because (a) wind projects had little or no dependable generating capacity, and (b) the potential projects were not situated close enough to the load growth areas of Groundbirch and Dawson Creek.

Site C – The pre-building of a 500 kV transmission line was apparently dismissed because of “schedule constraints”. And the text is not clear as to why the 230 kV interconnection project was rejected.

If BC Hydro has considered and evaluated any other options, it is important that these evaluations also be placed in the record for full consideration.

- 5.1 Please clarify exactly what 230 kV Site C interconnection project was considered and exactly why it was dismissed.
- 5.2 Please provide copies of whatever analysis was done to evaluate these supply option alternatives, and also for the transmission option alternatives that were dismissed.
- 5.3 In the intervening months since this application was prepared, has BC Hydro now evaluated any other transmission or local supply alternatives? Please provide copies of any analysis that has been done for any of these alternatives, whether transmission or generation alternatives. Please include a clear description of all assumptions and calculations, and provide any Excel models used to perform the evaluations.
- 5.4 Specifically, what natural gas-fired generation alternatives has BC Hydro examined and evaluated that could possibly serve some or all of the growing load in the Dawson Creek/Chetwynd area? Please provide any such analyses.
- 5.5 What alternatives has BC Hydro considered and evaluated that include any natural gas-fired energy production, whether electricity or otherwise, and/or renewable electricity generation, and/or either of these in combination with transmission alternatives. Please provide copies of any analyses of any such alternatives, including a clear description of all assumptions and calculations, and provide any Excel models used to perform the evaluations.

6.0 Reference: Exhibit B-5 BCUC IR 1.38.5

Do the natural gas price forecasts referred to in this response include the impact on natural gas prices of the development of LNG export terminals in the U.S. and Canada? Specifically in British Columbia and in particular how many terminals in B.C. and their export capability? If yes, please provide the details. What assumptions did BC Hydro make regarding long-term gas prices? Did these assumptions include the development of LNG export terminals in the U.S. and Canada? Specifically in British Columbia and in particular how many terminals in B.C. and their export capability? If yes, please provide the details. What exactly does the term “market price for gas” mean?