BC Hydro
Revenue Requirements Application
F2012-F2014

Information Request #2

By: Ludo Bertsch, Horizon Technologies Inc.
For: Energy Solutions for Vancouver Island Society
Date: March 6, 2012

1.0) Colwood Area Reinforcement in RRA

1.1 Range of cost estimates

References:
Exhibit B-16; ESVI 1.1.7, 1.1.7.1, 1.1.7.2 IR#1 Response
Exhibit B-15; BCUC 1.234.1 IR#1 Response

In response to the +100/-50 cost estimate range for the Colwood Area Reinforcement project, BC Hydro stated:

> *"The cost estimate has an accuracy of +100/-50 per cent because BC Hydro is still in the Identification Phase and has not identified all possible alternatives. Specific scenarios that could cause the cost estimate to reach the limits of the estimate range were not determined."*[1]

BC Hydro in regards to the Colwood project also noted that:

> *"The study associated with this project is expected to be completed in the fall 2012 and will include an updated estimate with an accuracy of +100 per cent/-20 per cent."*[2]

Please confirm that "all possible alternatives" and "specific scenarios", and the costing relating to them will be detailed in the fall 2012 study. If not please explain. Please discuss how the study will be released and if there will be stakeholder consultation.

1.2 Colwood project applicability for CPCN

References:
Exhibit B-16; ESVI 1.1.8, 1.1.8.1, 1.1.8.2, 1.1.8.3 IR#1 Response

[1] Exhibit B-16, ESVI 1.1.7 Response
[2] Exhibit B-15, BCUC 1.234.1 Response

Exhibit B-15; BCUC 1.234.1 IR#1 Response

In response to applying for a CPCN for the Colwood project with a nominal budget from $78.5 million that could go as high as $157 million[3], BC Hydro stated:

> *"If the P50 estimate is above $100 million, BC Hydro will plan to file a CPCN Application in late 2013, depending on available resources. If the P50 estimate is below $100 million BC Hydro will not file a CPCN Application."*[4]

1.2.1 Please reference the particular wording in guidelines or regulations that indicate that P50 is the appropriate estimate to use for CPCN thresholds.

1.2.2 If no particular wording referencing P50 is available, please justify the use of P50 as the appropriate threshold for the CPCN applications.

1.2.3 Please discuss the costing procedures that BC Hydro uses to determine a P50 pricing.

1.2.4 Please indicate whether BC Hydro identifies other pricing levels than P50 for its projects. If not, why not?

1.3 <u>CPCN Budget increases</u>

References:
Exhibit B-16; ESVI 1.1.8.3, 1.3.3 IR#1 Response
Exhibit B-15; BCUC 1.234.1, BCUC 1.358.1 IR#1 Response

BC Hydro stated in response to an ESVI IR:

> *"If, at some point after BC Hydro receives Board of Directors approval for Implementation Phase funding, the cost forecast range for a project increases beyond the threshold described above, BC Hydro does not stop the project, and seek approval for either a CPCN under section 46(1), or acceptance of an expenditure schedule request under section 44.2 of the UCA."*[5]

[3] Exhibit B-16, ESVI 1.1.8.3 IR Request
[4] Exhibit B-16, ESVI 1.1.7 Response
[5] Exhibit B-16, ESVI 1.1.8.3 Response

BC Hydro stated in its Capital Project Filing Guidelines:

> *"There are two key differences between section 44.2 and the UCA's CPCN provisions (sections 45 and 46): (a) Where a CPCN is required BC Hydro is not able to start construction in advance of the BCUC granting a CPCN; and (b) In the event that the CPCN is not granted, BC Hydro is unable to construct the project."*[6]

1.3.1 The wording in response to ESVI 1.1.8.3 is a bit ambiguous; please confirm that BC Hydro meant to say:

> *. . . BC Hydro does not stop the project,* ***<u>but instead seeks</u>*** *approval for either a CPCN . . .*

1.3.2 Please confirm that a project that started with a P50 budget below the CPCN threshold and then later its P50 budget increased above the CPCN threshold would not be stopped, yet a project that started with its P50 budget above the CPCN threshold, would not be started in the first place until the CPCN is granted.

1.3.2.1 Please discuss BC Hydro's budgetary costing guidelines in ensuring that initial P50 budgets are appropriate.

1.3.3 BC Hydro provided an Excel Spreadsheet list[7] of capital projects with actual versus estimate budgets[8]. Please discuss if the "Implementation Estimate" values are the same as the initial P50 budget, and if not please update with a column showing such numbers. Also, please include a column indicating whether or not CPCN's were used.

1.3.3.1 It is noted that the Variance and % columns for Generation projects were "Actuals minus Estimates", while Transmission/Distribution projects were reversed – "Estimates minus Actuals". Please explain or update the spreadsheet.

1.3.3.2 Please explain why the actual expenditures for 15 out of 17 Transmission/Distribution projects were higher than budget.

1.3.3.3 It is noted that the actual expenditures for only 2 out of 6 Generation projects where higher than budget. Please explain the difference between Generation and

[6] Exhibit B-1-3; Appendix U, Page 2 of 4
[7] Exhibit B-15; BCUC 1.358.1 Attachment
[8] Exhibit B-16; ESVI 1.3.3 which referenced to Exhibit B-15, BCUC IR 1.358.1

Transmission/Distribution projects to account for the difference.

1.4 BC Hydro Board of Directors trigger

References:
Exhibit B-16; ESVI 1.1.8.3 IR#1 Response

BC Hydro stated in response to an ESVI IR:

"In section 3, BC Hydro further describes that when the approval of the BC Hydro Board of Directors is sought for the Implementation Phase funding and that funding amount is above the threshold, the capital project filing requirement would then be triggered."[9]

1.4.1 Please confirm that the "funding amount" referenced in the statement above is the same as the P50 budget. If not, please explain.

1.4.2 Please confirm that this trigger point occurs during the Definition phase and does not during the Identification phase. If not, please explain.

1.4.3 For the Colwood project, please indicate if updated P50 estimates and public consultation will be publicly available before such a trigger occurs, and if so when.

1.4.4 Generally, once a trigger occurs, whether above or below the CPCN threshold, how long does it take for this information to be released and in what form is it released? Please also answer specifically for the Colwood project.

1.5 Circuit 1L146

References:
Exhibit B-16; ESVI 1.1.9, 1.1.9.2, 1.1.9.3 IR#1 Response

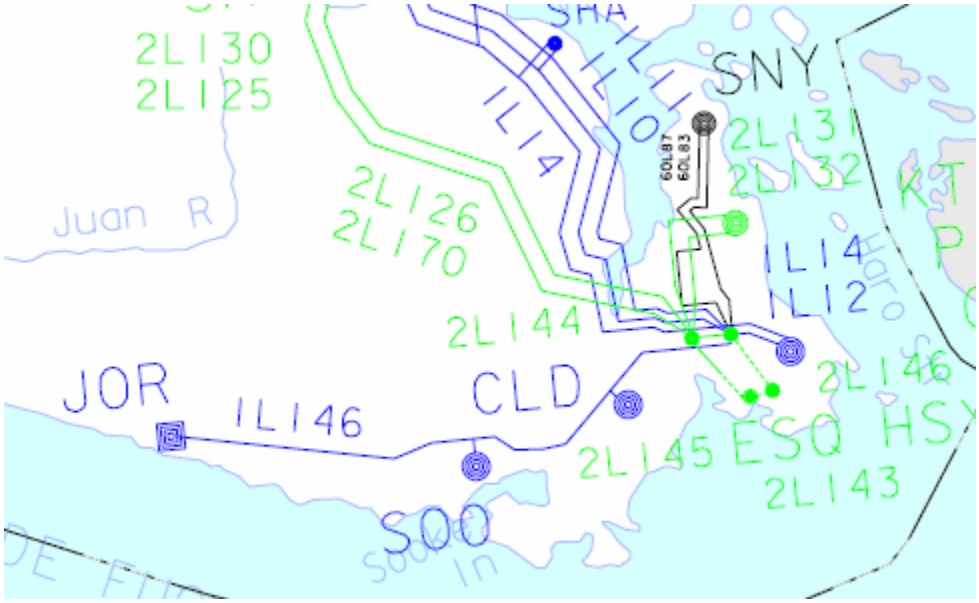
In the diagram below, BC Hydro identified circuit 1L146 between CLD and GOW, and 1L143 is shown between JOR and SOO[10]:

[9] Exhibit B-16, ESVI 1.1.8.3 Response
[10] Exhibit B-16, ESVI 1.1.9 Response

RESPONSE:

Circuit 1L146, between Goward Substation in the Victoria area and Colwood Substation, is highlighted and shown on the map below.

However, on the BC Hydro's current webpage (http://transmission.bchydro.com/transmission_system/maps/), it shows the following diagram for the Vancouver Island Transmission System:



This shows a label of 1L146 between JOR and SOO instead of 1L143.

In addition, the transmission line segment spreadsheet on the same website within the "Technical Maps" section for the "Provincial

Transmission System" information includes labeling of 1L146 as shown below and does not include any reference to 1L143:

230	1L146	JOR - Jordan River -> GOW - Goward	130	
231	1L146SOO	1L146SOO - Sooke Tap	130	
232	1L146CLD	1L146CLD - Colwood Tap (L)	130	
233	1L146CLD	1L146CLD - Colwood Tap (R)	130	

1.5.1 Please confirm the up-to-date labeling of the following sections - JOR-SOO, SOO-CLD, and CLD-GOW - and please update documents as appropriate.

1.5.2 Outages statistics were provided by BC Hydro for transmission line segment 1L146 in ESVI 1.1.9.2, but given the labeling discrepancies noted above, it is not clear for which transmission segment the statistics are provided. Please provide the same statistics as in ESVI 1.1.9.2 for each of the following sections: JOR-SOO, SOO-CLD and CLD-GOW.

1.5.3 The causes for outages were provided by BC Hydro for 1L146 in ESVI 1.1.9.3, but given the labeling discrepancies noted, it is not clear for which transmission segment the statistics are provided. Please provide the same statistics as in ESVI 1.1.9.3 for each of the following sections: JOR-SOO, SOO-CLD and CLD-GOW.

1.5.4 For the momentary outages and sustained outages listed in the response to ESVI's IRs (ESVI 1.1.9.3 of Exhibit B-16, plus responses to item 1.5.3 above), please indicate for each: the length of time of outage, the date and time of the occurrence. Please also provide the hourly substation consumption (similar to that provided in the spreadsheet ESVI 1.1.10.4.2) for the day of occurrence, 1 day before and 1 day after (if the occurrence was beyond the 5 year period already provided in ESVI 1.1.10.4.2).

1.5.5 Statistics were provided by BC Hydro in ESVI 1.1.9.4 for South Vancouver Island; please indicate the list of transmission segments (using label descriptions) and please outline the segments on a map which were considered for this answer.

1.6 Peak load trend

References:
Exhibit B-16; ESVI 1.1.11 IR#1 Response

BC Hydro identified that the peak load of Colwood, Sooke and Jordan substations were forecast at 181[11], 189[12], 188[13] MVA for 2011, 2015 and 2021 respectively and that Demand Side Management played a role in 2021 estimates being marginally lower[14].

1.6.1 Please include estimates for 2026 and 2031.

1.6.2 Please explain in further detail the way in which Demand Side Management is playing a role in the estimates.

2.0 Jordan River

References:
Exhibit B-16; ESVI 1.1.11, 1.2.2.2, 1.2.2.3 IR#1 Response

BC Hydro responded to several requests by ESVI regarding Jordan River.

2.1 BC Hydro indicated that *"increasing the capacity of the Jordan River facility could cause circuit 1L143 to overload, depending on the magnitude of the capacity increase."*

Does the reference made to causing circuit 1L143 to overload refer reaching the limits of "*260 MVA for winter*"[15] and "*194 MVA for summer*"[16] as confirmed by BC Hydro, or are there other considerations (if so, please explain)?

2.2 Please explain why the limits are different from winter to summer, and please provide a means of determining its value throughout the year (e.g. monthly estimates, or general formula related to temperature). Please discuss the factors (e.g. weather, timing) that affect the limits.

2.3 BC Hydro stated:

> *"Upgrades to this circuit or another transmission line from the Jordan River facility would be required to accommodate the additional generation capacity."*[17]

[11] Exhibit B-1-3, Amended Appendix J, Page 141 of 196
[12] Exhibit B-16, ESVI 1.1.11
[13] Exhibit B-1-3, Amended Appendix J, Page 141 of 196
[14] Exhibit B-16, ESVI 1.1.11
[15] Exhibit B-16, ESVI 1.2.2.2 Response
[16] Exhibit B-16, ESVI 1.2.2.2 Response
[17] Exhibit B-16, ESVI 1.2.2.2 Response

Would the upgrades or another transmission line only be necessary if the generation capacity was beyond those indicated by the 260 MVA and 194 MVA limits mentioned above?

2.4 Please discuss how the transmission line ratings are developed, (e.g. based on static or dynamic calculations) and how conservative the calculations are?

2.5 Please discuss how real- time monitoring and smart grid techniques may be able to increase capacity.

2.6 BC Hydro stated in regards to increasing the capacity at Jordan River:

> *"However, other transmission system upgrades may also be required to meet the long term needs of the area."*[18]

Please discuss and explain the "*long term needs of the area*" and why other transmission system upgrades maybe necessary (beyond increasing the capacity of Jordan River).

2.7 BC Hydro stated :

> *"Increasing the availability of the Jordan River facility . . . would not resolve the shortfall of transmission capacity to be addressed by the Colwood Area Transmission project."*[19]

Please discuss and explain why the increase in availability of the Jordan River facility would not resolve the shortfall.

3.0 Prudency Review of Colwood Project

References:

Exhibit B-16; ESVI 1.1.6, 1.1.7, 1.1.7.1, 1.1.7.2, 1.1.8.3.4, 1.1.9.1, 1.1.11.3, 1.1.11.5, 1.1.11.5.1, 1.1.11.5.2, 1.2.2, 1.2.2.4, 1.2.3, 1.2.4, 1.3.1, 1.3.1.1, 1.3.2.2.1, 1.3.2.2.2, 1.3.2.3, 1.3.2.3.4, 1.3.2.3.5, 1.5.1.2, 1.5.1.3.1, 1.6.3, 1.6.4, 1.6.5 IR#1 Responses

BC Hydro responded to numerous requests by ESVI for more information on the Colwood by indicating that that it *"is in the Identification Phase"* and therefore could not provide further information. Similar responses were given to a number of other requests. Find above a list of the responses by BC Hydro to ESVI's IRs which fit this category (there may be others as

[18] Exhibit B-16, ESVI 1.2.2.2 Response
[19] Exhibit B-16, ESVI 1.2.2.2 Response

well).

3.1 Please confirm that had the Colwood project progressed further, BC Hydro would have been able to provide more information to the requests by ESVI. If not, please explain.

3.2 In setting out BC Hydro's "*view on the proper scope of review of capital projects in revenue requirement proceedings*"[20], BC Hydro stated that the review of certain projects "*can also refer to determining whether the costs of capital projects may be recoverable in rates, or to challenging the recoverability of such costs in rates*" [21].

Please confirm that the Colwood project is one of the projects that fit into this category of highest level of prudency review. If not, please explain.

3.3 Please discuss the mechanism or process that BC Hydro plans to use to update stakeholders and interveners with the further information and then allow a proper prudency review to occur.

[20] Exhibit B-1-3, Amended Appendix U, Page 1 of 6
[21] Exhibit B-1-3, Amended Appendix U, Page 1 of 6