

**BC Hydro  
Revenue Requirements Application  
F2012-F2014**

**Information Request #1**

**By: Ludo Bertsch, Horizon Technologies Inc.  
For: Energy Solutions for Vancouver Island Society  
Date: Dec 23, 2011**

**1.0) Colwood Area Reinforcement in RRA**

**References:**

***Exhibit B-1, Appendix E, Page 33 of 41, Colwood Area Reinforcement  
Exhibit B-1-3, Amended Appendix I, Page 6 of 45, Colwood Area  
Transmission Project  
Exhibit B-1-3, Amended Appendix I, Page 17 of 45, Line Item 41  
Exhibit B-1-3, Amended Appendix J, Page 141 of 196***

- 1.1 Please confirm that the only discussion and mention of the “*Colwood Area Reinforcement*” project in the March 1, 2011 Revenue Requirements Application (RRA) submission is stated below and that it was contained in the BC Hydro Service Plan in a section labeled “*Contemplated Projects Over \$50 Million*”:

**“*Colwood Area Reinforcement***

***Reinforce the transmission system serving the Colwood/Langford, Sooke and Jordan River areas, which are currently supplied radially by one 138 kV circuit from Goward Substation in the Victoria area, to meet anticipated increased demand.”<sup>1</sup>***

Please confirm that the project did not appear in the budget nor appear in the description for Capital Expenditures greater than \$5 million in the same March 1, 2011 RRA.

If the project did appear in the budget or description, please include the other references in the March 1, 2011 RRA submission.

- 1.2 Please explain what type of projects are considered for the “*Contemplated Projects Over \$50 Million*” and if all these projects go forward?

---

<sup>1</sup> Exhibit B-1, Appendix E, Page 33 of 41, Colwood Area Reinforcement

- 1.3 Please confirm that the “*Colwood Area Transmission Project*” as referenced below has been added to the November 24, 2011 RRA, yet was not in the March 1, 2011 RRA:

*Exhibit B-1-3, Amended Appendix I, Page 6 of 45, Colwood Area Transmission Project*

*Exhibit B-1-3, Amended Appendix I, Page 17 of 45, Line Item 41*

*Exhibit B-1-3, Amended Appendix J, Page 141 of 196*

If not confirmed, please explain.

- 1.4 Please confirm that the project in Item #1.1 in March and #1.3 in November are the same project. If not, please explain.
- 1.5 Please explain why in March 1, 2011 BC Hydro was not intending to start this project until F2015 or later<sup>2</sup>, yet as of November 24, 2011, the project is now scheduled to start in F2013<sup>3</sup>. Please detail the factors that changed to cause this time-line change.
- 1.6 The “*Colwood Area Transmission Project*” has a budget of \$1.5 million, \$5.0 million, and \$72.0 million for F2013, F2014, and “*Remaining*” years respectively<sup>4</sup>. Please describe in detail what will be accomplished for each time period.
- 1.7 The “*Forecast Capital Cost*” for the project has a range of +100 per cent/-50 per cent<sup>5</sup>. Please list the expenses for a) nominal budget of \$78.5 million, b) + 100 per cent and c) – 50 per cent.
- 1.7.1 Explain in detail the circumstances, which might cause the budget to be 100 per cent higher.
- 1.7.2 Explain in detail the circumstances, which might cause the budget to be 50 per cent lower.
- 1.8 Please confirm that at this point in time, there are no plans for a Certificate of Public Convenience and Necessity (CPCN) for the “*Colwood Area Transmission Project*”<sup>6</sup>. If there are plans for a CPCN to be filed in the future, please indicate when it is planned to be filed and why it was not listed<sup>7</sup>.

---

<sup>2</sup> The Colwood Area Transmission Project did not appear in the F2012-F2014 budget or plans

<sup>3</sup> Exhibit B-1-3, Amended Appendix I, Page 17 of 45, Line 41 [Colwood Budget]

<sup>4</sup> Exhibit B-1-3, Amended Appendix I, Page 17 of 45, Line 41

<sup>5</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196, Forecast Capital Cost

<sup>6</sup> Exhibit B-1-3, Amended Appendix U, Page 6 of 6

<sup>7</sup> Exhibit B-1-3, Amended Appendix U, Page 6 of 6

1.8.1 Please discuss why a CPCN was not applied nor is anticipated for the “*Colwood Area Transmission Project*”.

1.8.2 Please describe what circumstances would move the project to require a CPCN.

1.8.3 In the “*Capital Guidelines*” it is noted that:

“ . . . in general BC Hydro will file for:

1. A CPCN pursuant to subsection 46(1) of the UCA for capital project which are clearly extensions and which are above the expenditure thresholds set out in the Guidelines”<sup>8</sup>

“BC Hydro has established three different expenditure threshold levels for capital projects, as follows:

- \$100 million for generation and transmission (including Substation Distribution Asset (**SDA**) components) projects; . . .”<sup>9</sup>

We note that the “*Colwood Area Transmission Project*” Forecast Capital Cost could go as high as \$157 million<sup>10</sup> yet its nominal Forecast Capital Cost is \$78.5 million<sup>11</sup>. Please comment on BC Hydro’s interpretation of the “*expenditure threshold*” for CPCNs, if the range of Forecast Capital Costs of a project exceeds the “*expenditure threshold*” yet the nominal budget is below the “*expenditure threshold*”.

1.8.3.1 Please explain the capital funding process if a project starts below the “*expenditure threshold*” without a CPCN and then the project projected costs increase above the “*expenditure threshold*”. At what point would a CPCN be initiated?

1.8.3.2 BC Hydro notes that:

“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 . . .”<sup>12</sup>

---

<sup>8</sup> Exhibit B-1-3, Amended Appendix U, Page 4 of 6

<sup>9</sup> Exhibit B-1-3, Amended Appendix U, Page 3 of 6

<sup>10</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196; \$78.5 million + 100% = \$157 million

<sup>11</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196; Forecast Capital Cost

<sup>12</sup> Exhibit B-1-3, Amended Appendix U, Page 4 of 6

Can planning or other activities than construction start before the granting of a CPCN? If so, please provide details.

1.8.3.3 Please explain the process for a project that does not have a CPCN or one is not planned – for these projects, can construction or other activities start in advance of the RRA decision?

1.8.3.4 What is the earliest start date of the “*Colwood Area Transmission Project*” and what are the determining factors or circumstances, e.g. what will trigger it to start?

1.9 BC Hydro states: “*Therefore, JOR will not be able to supply the entire load in the area if there is an outage on 1L146 during the peak load in winter months. As the load continues to grow, more load will need to be curtailed under this scenario.*”<sup>13</sup> Please show on a map this fault condition – please be specific to the section of 1L146 to which this is being addressed.

1.9.1 Please list and describe all other similar fault conditions, which are being addressed (e.g. transformer failures, etc.).

1.9.2 Please supply the failure rate (or percentage chance) of each of these fault conditions occurring.

1.9.3 Please supply details of all occurrences over the last 20 years involving faults as listed in sections 1.9 and 1.9.1.

1.9.4 Please supply details of all occurrences over the last 20 years involving transmission service faults throughout Greater Victoria.

1.9.5 If the outage condition occurred today, in 2015 (without any new transmission lines) and 2021 (without any new transmission lines), please describe the actions that BC Hydro would take to service the load.

1.9.5.1 Under these outage conditions, please detail the curtailment capacity, including the industrial load shedding.

1.10 It is noted that in reference to Colwood, Sooke and Jordan River substations: “*The total (winter peak) load of these substations is*

---

<sup>13</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196

approximately 181 MVA in 2011 . . .<sup>14</sup>. Please provide a map showing the area, which contributes to this load.

- 1.10.1 Please indicate the breakdown of 181 MVA for each of the three substations, Colwood, Sooke and Jordan River
- 1.10.2 Please indicate the weather conditions for which this winter peak of 181 MVA was calculated.
- 1.10.3 In 2007, BC Hydro reported in response to an ESVI IR, that the BC load was to be 50% residential, 35% commercial, and 15% industrial<sup>15</sup>. Within those categories, please provide separate electrical heating/non-heating percentages. Please update the numbers for 2011, and please provide estimates for 2015 and 2021.
- 1.10.4 During the winter peak, please indicate the percentage of residential, commercial and industrial loads for each of the three substations; Colwood, Sooke and Jordan River, including electrical heating/non-heating percentages. Please provide estimates for 2015 and 2021.
  - 1.10.4.1 Please discuss the differences between residential, commercial and industrial loads in regards to power factor and load profile during the winter peak. Please discuss the relevancy of power factor.
  - 1.10.4.2 It is noted that BC Hydro provides hourly load system-wide profiles for the last 10 years<sup>16</sup> on its website in excel format. Please provide similar hourly load profiles for the 3 substations, Colwood, Sooke and Jordan River for at least the last 5 years.
  - 1.10.4.3 In answer to an ESVI IR, BCTC stated that:

*“BCTC intends to continue using the Power World program at stakeholder consultation sessions as it provides an informative view into how the transmission system is planned and operated. If requested, BCTC will consider providing scenarios for stakeholders to view*

---

<sup>14</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196

<sup>15</sup> BCTC F2008 to F2017 Capital Plan, B-6, ESVI IR 1.7.5.1, Response

<sup>16</sup> BC Hydro Historical Transmission Data, Hourly;

[http://transmission.bchydro.com/transmission\\_system/balancing\\_authority\\_load\\_data/historical\\_transmission\\_data.htm](http://transmission.bchydro.com/transmission_system/balancing_authority_load_data/historical_transmission_data.htm)

*with the Power World Viewer but is not able to provide training in the use of this tool.”<sup>17</sup>*

We request that BC Hydro provide the scenarios in Power World format that relate to the “*Colwood Area Transmission Project*”, including for 2011, 2015 and 2021 winter peak conditions.

1.10.4.3.1 Will BC Hydro continue to use the Power World program for the stakeholder consultation sessions for the “*Colwood Area Transmission Project*”?

1.11 It is noted that in reference to Colwood, Sooke and Jordan River substations: “*The total (winter peak) load of these substations . . . is forecast to grow to 188 MVA in 2021.*”<sup>18</sup>. Please add an estimate for 2015.

1.11.1 Please discuss how the estimates were made, including discussing the amount of new conservation, residential solar, demand response, and other DSM programs that are assumed at these times.

1.11.1.1 Is BC Hydro willing to consider investing in new energy conservation measures to reduce load requirements?

1.11.1.2 Is BC Hydro willing to consider options for local electricity generation and peak shaving?

1.11.2 Please discuss the weather forecast conditions (e.g. normal/average, or 1 in 10 cold level) assumed at these peaks.

1.11.3 Has any assessment been done to determine the potential for community energy savings and peak reduction through demand response to reduce the load forecasts? If so, please provide reports. If not, why has no such assessment been done?

1.11.4 Has local regional considerations been factored into the load calculations, such as:

- City of Colwood requiring greater energy efficient design in buildings and adoption of solar water ready regulation for all new homes<sup>19</sup>,
- potential growth of the energy efficient initiatives of Solar

---

<sup>17</sup> BCTC F2008 to F2017 Capital Plan, B-6, ESVI IR 1.13.1, Response

<sup>18</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196

<sup>19</sup> Wishart Rd & Wale Rd Reports: <https://colwood.civicweb.net/Documents/DocumentList.aspx?ID=51302>

- Colwood<sup>20</sup>, expansion of solar PV concepts initiated by T'-Sou-ke First Nation<sup>21</sup>.

If so, please explain. If not, why not?

1.11.5 Has the potential for increased local generation been considered for reducing the load demand during the peak? If so, please describe.

1.11.5.1 Has the Ministry of Community, Sport and Cultural Development's policies on Integrated Resource Recovery<sup>22</sup> been considered? If so, please describe. If not, why not?

1.11.5.2 Has the effect of local generation on improving local job creation, reducing greenhouse gases and line losses, improving reliability been considered? If so, please describe. If not, why not?

## 2.0) *Jordan River*

### *References:*

***BCTC F2008-F2017 Capital Plan, ESVI Final Submission – April 2, 2007***  
***BCTC F2008-F2017 Capital Plan, BCTC Final Submission to ESVI IR – May 1, 2007***

In the BCTC F2008-F2017 Capital Plan, ESVI on April 2, 2007 in its final submission submitted a number of suggestions and requests regarding Jordan River, to which BCTC responded to.

2.1 On May 1, 2007, BCTC replied to ESVI indicating that the transmission line rating of the Jordan River line is 260 MVA for winter and 194 MVA for summer<sup>23</sup>. Please confirm that these ratings are still valid. If not, please indicate the new values and why they changed.

---

<sup>20</sup> Solar Colwood is a federally sponsored demonstration of a whole community moving towards energy conservation and renewable clean energy, including ductless heat pumps; [www.solarcolwood.ca](http://www.solarcolwood.ca)

<sup>21</sup> T'Sou-ke First Nations Centre for Sustainable Living; <http://fnbc.info/tsouke-first-nation-centre-for-sustainable-living>

<sup>22</sup> Ministry of Community, Sport and Cultural Development, Dev Permit Areas for Climate Action: [http://www.cscd.gov.bc.ca/lgd/library/dpa\\_guide/dpa\\_guide.pdf](http://www.cscd.gov.bc.ca/lgd/library/dpa_guide/dpa_guide.pdf)

Resources From Waste:

[http://www.cscd.gov.bc.ca/lgd/infra/library/Resources\\_From\\_Waste\\_IRR\\_Guide.pdf](http://www.cscd.gov.bc.ca/lgd/infra/library/Resources_From_Waste_IRR_Guide.pdf)

[http://www.cscd.gov.bc.ca/lgd/infra/library/Resources\\_From\\_Waste\\_IRM\\_Study.pdf](http://www.cscd.gov.bc.ca/lgd/infra/library/Resources_From_Waste_IRM_Study.pdf)

<sup>23</sup> BCTC F2008 to F2017 Capital Plan, BCTC - Final Submission to ESVI IR – May 1, 2007, IR#1.1, Response, Page 1

2.2 ESVI asked BCTC to “comment on the transmission system ramifications if the Jordan River facility had improved generation capacity or availability”<sup>24</sup>.

BCTC responded: “Accordingly, increased Jordan River capacity or availability would not change the need to reinforce this portion of the transmission system.”<sup>25</sup>

Given that response by BCTC was provided in the context of the considerations at that time (May 2007), many of the proposed projects (such as Keating Substation, Central Vancouver Island Reinforcement Project, Colwood transformer addition, etc.) have moved forward and there is a new set of considerations, has BC Hydro revisited the question of the Jordan River upgrade. If so, please discuss the findings. If not, why has BC Hydro not revisited the question of the Jordan River upgrade?

2.2.1 Please discuss and provide data on the operational performance of the Jordan River generation in the last 5 years.

2.2.2 With the present considerations as discussed in this RRA, please comment on the transmission system ramifications if the Jordan River facility had improved generation capacity or availability.

2.2.3 If Jordan River facility had improved generation capacity or availability would that deal with the issue addressed in the “Colwood Area Transmission Project”? If not, please explain.

2.2.4 It is noted that in the preliminary assessment of alternatives<sup>26</sup> for the “Colwood Area Transmission Project”, BC Hydro did not consider increased Jordan River capacity. Please explain why not?

2.3 ESVI asked: “has BCTC requested BC Hydro to further investigate the Jordan River facility generation capacity and availability through pumped storage, more water storage, tidal, wind or other techniques?”<sup>27</sup>

BCTC responded that it “has not asked BC Hydro to investigate Jordan River generation capacity and availability through pumped storage or more water storage because it does not improve the total transmission capability of this part of the network given that the line connecting this resource to the system is the most critical single outage.”<sup>28</sup>

---

<sup>24</sup> BCTC Final ESVI Submission (see Footnote 23), IR#1.2, Page 2

<sup>25</sup> BCTC Final ESVI Submission (see Footnote 23), IR#1.2, Response, Page 2

<sup>26</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196, Discussion of alternatives

<sup>27</sup> BCTC Final ESVI Submission (see Footnote 23), IR#1.3, Page 2

<sup>28</sup> BCTC Final ESVI Submission (see Footnote 23), IR#1.3, Response, Page 2

Given that the response by BCTC was provided in the context of the considerations at that time (May 2007), but now the lack of capacity at Jordan River may result in requiring the \$78.5 million Colwood transmission line to be built, will BC Hydro (which now subsumes the BCTC role) now consider moving forward with a comprehensive Jordan River upgrade investigation, including potentially adding more generators or other appropriate upgrades?

2.4 In 2007, ESVI asked about a cost/benefit decision analysis for an improved Jordan River facility.<sup>29</sup>

Now that the lack of capacity at Jordan River may result in requiring the \$78.5 million Colwood transmission line to be built, will BC Hydro now consider developing a cost/benefit analysis for an improved Jordan River facility?

### 3.0) **Colwood Area Reinforcement in F2010-F2011 Capital Plan and F2012-F2014 RRA**

#### **Reference:**

#### **BCTC F2010-F2011 Capital Plan, Exhibit B-1**

In the BCTC F2010-F2011 Capital Plan submitted November 21, 2008, BCTC included a “*Future Project*” called the “*Colwood Area Reinforcement*” with a project cost of \$47.0 million, starting in F2010 and In-Service Date of October 2013<sup>30</sup>.

3.1 We note the project has a budget of \$1.5 million, \$1.0 million, \$2.5 million, \$17 million, and \$25.0 million for F2010, F2011, F2012, F2013, and F2014, respectively<sup>31</sup>. Please describe in detail the budget for each time period.

3.1.1 Please explain the differences in the Nov 21, 2008 total budget of \$47.0 million<sup>32</sup> to the present Nov 24, 2011 budget of \$78.5 million<sup>33</sup>.

3.1.2 The 2008 budget shows budget for 5 years total (F2010 to F2014)<sup>34</sup>, yet the 2011 budget only shows budget for the first 2 years (F2013 and F2014)<sup>35</sup> and then has a general category called “*Forecast Remaining Expenditures*” without indicating individual years. Does BC Hydro still expect the “*Colwood Area*

<sup>29</sup> BCTC Final ESVI Submission (see Footnote 23), IR#1.4, Page 3

<sup>30</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.1, Table 5-1, Page 5-3, Line 46

<sup>31</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.1, Table 5-1, Page 5-3, Line 46

<sup>32</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.1, Table 5-1, Page 5-3, Line 46

<sup>33</sup> Colwood Budget (see Footnote **Error! Bookmark not defined.**), Line 41

<sup>34</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.1, Table 5-1, Page 5-3, Line 46

<sup>35</sup> Colwood Budget (see Footnote **Error! Bookmark not defined.**), Line 41

*Reinforcement*” Project to take 5 years? Please indicate the 2011 budget estimates for each year of the project until the end of the project.

3.1.3 Why does the 2011 budget remove the itemized year budgets and use a general category “*Forecast Remaining Expenditures*” unlike the 2008 budget, which itemized each year? Does BC Hydro intend to continue to document its budgets this way?

3.1.4 Was there any expenditure allocated to the items in the 2008 budget, and if so, please expand on the work done.

3.2 We note that there are details provided in the November 2008 description<sup>36</sup> that do not appear in the November 2011 description<sup>37</sup> of the Colwood area project. Please explain why there is a difference in the description between the two versions.

3.2.1 Why was the name changed from “*Colwood Area Reinforcement*”<sup>38</sup> in November 2008 to “*Colwood Area Transmission Project*”<sup>39</sup> in November 2011?

3.2.2 In November 2008, BCTC stated: “*The study is expected to be completed in the next year and consultation will commence shortly afterwards*”<sup>40</sup> yet does not appear in the November 2011 version. Was the study done in the next year following 2008? If so, please provide a copy of the study. If not, why not?

3.2.2.1 Has BCTC or BC Hydro commenced with consultation? If not, why not?

3.2.2.2 Does BC Hydro commit to the same action in November 2011 that BCTC committed to in 2008; that is: “*The study is expected to be completed in the next year and consultation will commence shortly afterwards.*” If not, why not?

3.2.3 In November 2008, BCTC stated: “*The portion from the Colwood tap point to Colwood was considered to go underground.*”<sup>41</sup> yet does not appear in the November 2011 version. Please show on a

---

<sup>36</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.5.2.2.3, Page 5-62, Lines 4 to 21

<sup>37</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196

<sup>38</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.5.2.2.3, Page 5-62, Line 4

<sup>39</sup> Exhibit B-1-3, Amended Appendix J, Page 141 of 196, Project Name

<sup>40</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Lines 13 to 14

<sup>41</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.5.2.2.3, Page 5-62, Lines 19 to 20

map the “*Colwood tap point to Colwood*” that was considered to go underground in 2008.

3.2.3.1 Did the \$47.0 Million in the 2008 budget include the costs for the underground section? If not, why not?

3.2.3.2 Does the 2011 version include funding for the underground section?

3.2.3.3 Why did the underground section sentence not appear in the 2011 description?

3.2.3.4 BCTC Guidelines for “*Development Near Overhead Transmission Lines in BC*”<sup>42</sup> suggests that undergrounding costs between 10 and 40 times more than overhead towers. Please comment on these numbers. Also, please estimate the extra expense for underground in relation to overhead towers for the underground Colwood section discussed above.

3.2.3.5 Please show on a map the routes considered for the Pike Lake to Colwood transmission line as contemplated in 2008 and as contemplated in 2011. If no routes were contemplated, please comment on the most likely route.

3.2.4 In 2011, BC Hydro noted that “*A preliminary assessment of alternatives was conducted . . .*”<sup>43</sup> yet in 2008, BCTC only based its estimate “*on one identified alternative*”<sup>44</sup>. Does this mean that a preliminary assessment was done between 2008 and 2011? If so, please supply the report. If not, please explain.

3.2.5 Please explain why the “*Colwood Area Reinforcement*” project was outlined and budgeted in November 2008<sup>45</sup>, yet did not appear in the March 1, 2011 RRA<sup>46</sup>, only to reappear in November 24, 2011 version<sup>47</sup>.

3.3 Please provide a list of the capital projects completed in the last two years, with the actual expenditures compared to the estimate used for the first time

---

<sup>42</sup> Guidelines for Development Near Overhead Transmission Lines in BC; [http://transmission.bchydro.com/nr/ronlyres/f99224d1-ece9-4c70-be78-5dca1beb58be/0/bctc\\_devbook\\_may13\\_final\\_lowres.pdf](http://transmission.bchydro.com/nr/ronlyres/f99224d1-ece9-4c70-be78-5dca1beb58be/0/bctc_devbook_may13_final_lowres.pdf)

<sup>43</sup> Colwood Description (see Footnote **Error! Bookmark not defined.**) , Discussion of alternatives

<sup>44</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.5.2.2.3, Page 5-62, Line 15

<sup>45</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Section 5.1, Table 5-1, Page 5-3, Line 46

<sup>46</sup> See Item 1.1 in this document

<sup>47</sup> Colwood Budget (see Footnote **Error! Bookmark not defined.**), Line 41

the project was included in a Revenue Requirements.

#### 4.0) **Non-Wires**

##### **Reference:**

***Exhibit B-1-3, Amended Appendix J, Page 99 of 196***

4.1 BC Hydro considered “*non-wires alternatives, such as demand side management*”<sup>48</sup> in the GMS/Dawson Area Transmission (GDAT) project. Please confirm that BC Hydro has not documented Non-Wires alternatives for any other project than the GDAT project in the November 2011 RRA document Exhibit B-1-3. If there are other documented cases on Non-Wires alternatives, please indicate where in the Exhibit B-1-3 document such references appear.

4.1.1 We note that Commission Order G-107-08 Directive 8 states:  
*“The Commission Panel directs BCTC to report in future capital plans the specific instances where non-wires options have been considered in project option evaluations.”*<sup>49</sup>. BC Hydro responded to that directive with the following: *“BC Hydro includes discussion of alternatives in major capital project filings, and in capital project descriptions included in revenue requirement applications.”*<sup>50</sup>

Therefore, we surmise that the GMS/Dawson Area Transmission project was the only project where Non-Wires alternatives were considered by BC Hydro in this RRA. Please confirm this. If not, please explain.

4.1.2 BCTC noted that in its “*Non-Wire Solutions*” for the Dawson Creek Area Reinforcement in the BCTC F2011 Capital Plan Update that *“according to the load forecast, demand side management may reduce Dawson Creek Substation load by up to 10 MVA . . .”*<sup>51</sup>. Please provide all reports relating to these solutions. If no report is available, please describe in detail how these calculations were done and what types of solutions were considered “*Non-Wires*”.

4.2 We note that BC Hydro did not include in the RRA Exhibit B-1-3 the Commission Order G-91-05 Directive 10b but was included in the BCTC

---

<sup>48</sup> Exhibit B-1-3, Amended Appendix J, Page 99 of 196

<sup>49</sup> Exhibit B-1-3, Chapter 10, Table 10-5, Page 10-18

<sup>50</sup> Exhibit B-1-3, Chapter 10, Table 10-5, Page 10-18

<sup>51</sup> BCTC F2011 Capital Update, Exhibit B-1, Section 2.1.2.3.2, Page 19

F2010-F2011 Capital Plan. That directive stated:

*“The Commission Panel further notes that, as the entity responsible for developing solutions to transmission constraints, BCTC is in the best position to identify the extent to which customer- or third-party-provided solutions could defer or eliminate the need for Growth Capital investments. Without pre-judging whether BCTC or BC Hydro (or both) should ultimately contract for non-wires solutions, the Commission Panel expects that BCTC will identify potential non-wires solutions in future studies and capital plan applications.”<sup>52</sup>*

We note that BCTC assumed that the G-91-05 Directive 10b was “Superseded by G-107-08 Directive 8”<sup>53</sup>. Please explain BC Hydro’s interpretation of G-107-08 Directive 8 and in particular how it could be interpreted to supersede G-91-05 Directive 10b.

- 4.2.1 Does BC Hydro still follow the principles of G-91-05 Directive 10b? If not, why not.
- 4.2.2 Does BC Hydro consider Non-Wires alternatives for all of its transmission projects and capital plan applications? If not, why not?
- 4.2.3 Please list all the types of Non-Wires alternatives that BC Hydro considers.
- 4.2.4 Please provide costs of Non-Wires alternatives, including local generation, energy storage, DSM, demand response, that are currently being used for planning purposes.
- 4.2.5 Please describe the benefits of Non-Wires alternatives.

4.3 We note that BC Hydro did not include in the RRA Exhibit B-1-3 the Commission Order G-91-05 Directive 10a but was included in the BCTC F2010-F2011 Capital Plan. That directive stated:

*“The Commission Panel therefore directs BCTC, if it has not already done so, to initiate discussions with customers (including BC Hydro) on potential customer-provided solutions to transmission constraints, and to report to the Commission on the outcome of those discussions in its next capital plan. Without limiting the scope of the discussions, the Commission Panel expects BCTC will examine the following in conjunction with BC Hydro:*

---

<sup>52</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-22

<sup>53</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-22

- options for general (i.e., system- or area-wide) demand reductions, to the extent they are not already covered by existing DSM initiatives such as PowerSmart;
- options for location- or area-specific demand reductions, either planned or in response to system events (e.g., by arming customer-specific remedial action schemes);
- demand reduction timing requirements (e.g., all hours, peak months or hours, or only when armed);
- mechanisms for compensating customers, such as reduced rates, direct payments through commercial contracts, or investment deferral credits;
- options for customer-supplied transmission services, such as reactive power or reliability must-run generation.<sup>54</sup>

We note that BCTC assumed that the G-91-05 Directive 10a was “Complete”<sup>55</sup>. Please discuss if BC Hydro is following this directive on an ongoing basis. If not, why not?

4.4 We note that BC Hydro did not include in the RRA Exhibit B-1-3 the Commission Order G-107-08 Directive 46 but was included in the BCTC F2010-F2011 Capital Plan. That directive stated:

*“The Commission Panel directs BCTC to comment on all Directives contained in past Decisions, even if such reporting confirms that no update is required, or the requested information is not applicable.”*<sup>56</sup>

We note that BCTC assumed that the G-91-05 Directive 46 was “Complete”<sup>57</sup>. For each subsequent RRA, does BC Hydro review all Directives contained in past Decision, even if such reporting confirms that no update is required, or the requested information is not applicable? Please comment.

4.5 We note that BCTC discussed Non-Wires alternatives in each of four projects<sup>58</sup> in the BCTC F2011 Capital Plan Update on January 8, 2010. Please discuss why BC Hydro has not discussed its capital projects in a similar way for this RRA and please describe how BC Hydro plans on presenting Non-Wires alternatives in the future.

4.6 Please comment on the suggestions of ESVI et al. in the Transmission Inquiry for Non-Wires<sup>59</sup> in Item 1.1.4 which states in summary:

<sup>54</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-22

<sup>55</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-21

<sup>56</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-4

<sup>57</sup> BCTC F2010-F2011 Capital Plan, Exhibit B-1, Chapter 9, Table 9-1, Page 9-4

<sup>58</sup> BCTC F2011 Capital Plan Update, Exhibit B-1, Pages 16, 19, 22, 26.

<sup>59</sup> See Item 1.1.4 of the Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Aug 12, 2009; [http://www.bcuc.com/Documents/Proceedings/2009/DOC\\_22674\\_C58-4\\_ESVI-OEIA-ITO-ROMS\\_Scenarios-009-CompleteBodyAndAppendices.pdf](http://www.bcuc.com/Documents/Proceedings/2009/DOC_22674_C58-4_ESVI-OEIA-ITO-ROMS_Scenarios-009-CompleteBodyAndAppendices.pdf)

- “10 year-ahead planning report, workshops, analysis and screening process”<sup>60</sup>, and
- “A key principle is to ensure the process is integrated between transmission, generation and demand. This allows non-wire solutions, such DSM or strategic local renewable generation, to have a reasonable lead-time in order to be fairly considered and encouraged over potential transmission infrastructure enhancements.”<sup>61</sup>

4.7 Please discuss the relationship between Non-Wires and the Smart Grid.

## 5.0) **Process for Colwood Area Reinforcement Project**

### **References:**

**Exhibit B-1-3, Amended Appendix J, Page 141 of 196  
BCTC Central Vancouver Island Transmission Project, Exhibit B-1**

5.1 Should the “Colwood Area Reinforcement” project (Colwood ARP) be initiated without a CPCN, please describe the expected process as compared to the process for the Central Vancouver Island Transmission Project (CVITP).

5.1.1 We note that the CVITP documentation includes a log of BC Hydro and BCTC’s consultation on the project<sup>62</sup>. Will BC Hydro be providing the same level of documentation for the Colwood ARP, and will the information be available throughout the project? If not, why not?

5.1.2 Please provide a list and schedule of the planned meetings and workshops that would be anticipated for Colwood ARP. If not available, when would it be available?

5.1.3 Please confirm that the first public CVITP information<sup>63</sup> was the letter of April 25, 2007<sup>64</sup>.

5.1.3.1 Please confirm that already at this point, the CVITP letter includes several alternative routing options, and there was no mention of Non-Wires or alternatives to the transmission lines. Please discuss why.

<sup>60</sup> Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Aug 12, 2009, Page 11 of 48

<sup>61</sup> Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Aug 12, 2009, Page 11 of 48

<sup>62</sup> BCTC Central Vancouver Island Transmission Project, Exhibit B-1, Section 7.0, Pages 95 to 127

<sup>63</sup> BCTC Central Vancouver Island Transmission Project, Exhibit B-1, Section 7.2.2.1, Page 116, Lines 11 to 15

<sup>64</sup> BCTC Central Vancouver Island Transmission Project, Exhibit B-1, Appendix Q-1

5.1.3.1.1 Please discuss how the input to the CVITP letter was developed. Were any stakeholders outside BC Hydro/BCTC involved in the development of that letter?

5.1.3.1.2 Please describe the process for developing the first public documentation for the Colwood ARP. Will other stakeholders be involved? If so, what parties will be involved in helping to draft the first public documentation?

## **6.0) Consequences of Colwood Transmission line**

### **Reference:**

***Exhibit B-1-3, Amended Appendix J, Page 141 of 196***

Assuming that it has been determined that a new transmission line should be installed for the “*Colwood Area Reinforcement*” project, please respond to the following IRs:

6.1 Please discuss BC Hydro’s plans to address homeowner concerns, including EMF, property values and visual impacts.

6.2 Please describe the financial implication model that BC Hydro will use to justify its decision.

6.3 Please describe the decision process that BC Hydro will use for determining the best route.

6.4 Does BC Hydro plan to compensate homeowners along the route? If so, has that been factored into the \$78.5 Million estimate and please explain. If not, why not?

6.5 Please describe the type of information that BC Hydro plans to provide to the public regarding new transmission lines?

## **7.0) Long Beach Area Transmission line**

### **References:**

***Exhibit B-1-3, Amended Appendix I, Page 6 of 45, Long Beach Area Transmission Project***

***Exhibit B-1-3, Amended Appendix I, Page 17 of 45, Line Item 40***

***Exhibit B-1-3, Amended Appendix J, Page 140 of 196***

7.1 It is noted that this project, the Long Beach Area Transmission Line, is in the same situation as the Colwood Area Reinforcement project<sup>65</sup> in regards to possible applicability to a CPCN with a budget of up to \$110.6 million<sup>66</sup>. Please comment on this project in regards to its applicability for a CPCN application.

7.2 Throughout much of this document, substantial focus has been on the Colwood Area Reinforcement Project - please discuss all differences in the way BC Hydro will be handling the Long Beach Transmission project compared to the Colwood Area Reinforcement Project.

## 8.0) ***Next Mainland to Vancouver Island Transmission Line***

### ***Reference:***

***BCTC F2008 to F2017 Capital Plan, Exhibit B-6, ESVI, IR 1.3.2, Response***

ESVI asked BCTC during F2008 to F2017 Capital Plan about the next Mainland to Vancouver Island upgrade:

*“When is the next anticipated upgrade expected to be required from the mainland to Vancouver Island, and which line is anticipated to be upgraded?”<sup>67</sup>*

On March 14, 2007, BCTC responded with:

*“The next anticipated transmission upgrade between the Mainland and Vancouver Island is currently a second set of 230 kV submarine cables in parallel with the current VITR project. However, this project is not in BCTC’s current 10-year Capital Plan.*

*Timing is dependent on actual load growth and generation additions on Vancouver Island in the coming years. At present forecast growth rates in the absence of any major new power sources on Vancouver Island, an expected in-service date would be 2018 or later. It is also possible that technology developments or other unanticipated factors could affect the timing or technical aspects of the next transmission capacity addition.”<sup>68</sup>*

8.1 This estimate of the next Mainland to Vancouver Island line of 2018 was given in 2007. Please answer the same question providing the updated answer for today, in 2011: *“When is the next anticipated upgrade expected to be required from the mainland to Vancouver Island, and which line is anticipated to be upgraded?”*

---

<sup>65</sup> See Section 1.8.3 in this document

<sup>66</sup> Exhibit B-1-3, Amended Appendix J, Page 140 of 196; \$55.3 million + 100% = \$110.6 million

<sup>67</sup> BCTC F2008 to F2017 Capital Plan, C5-2, ESVI IR#3.2, Page 3

<sup>68</sup> BCTC F2008 to F2017 Capital Plan, B-6, ESVI IR #1.3.2, Response

- 8.2 Please explain any changes from the 2007 answer. Please discuss all relevant transmission activities, including the ILM, and how they relate to the next mainland to Vancouver Island transmission line.
- 8.3 Please discuss the possible “*technology developments*” that could affect the timing.
- 8.4 Please list and describe “*any major power sources on Vancouver Island*” since 2007.
- 8.5 Please discuss “*the load growth on Vancouver Island*” since 2007.
- 8.6 Please explain why “*this project is not in BCTC’s current 10-year Capital Plan*”. Is the project now on BC Hydro long term capital plan? If so, please describe. If not, why not?
- 8.7 Please provide the latest detailed descriptions, status and predicted life of all Mainland to Vancouver Island transmission lines.
- 8.8 Please discuss the viability of introducing an early evaluation step (e.g within this RRA) for the next Mainland to Vancouver Island Transmission Line process with an attempt to evaluate Non-Wire solutions with sufficient time to consider solutions other than transmission lines, similar to the “*10 year-ahead planning report, workshops, analysis and screening process*”<sup>69</sup> concepts as suggested by BPA. Would this be beneficial? If not, why not?

## 9.0) **BC Hydro and BCTC Integration**

### **Reference:**

***BCTC F2008 to F2017 Capital Plan, Exhibit B-6, ESVI, IR 1.3.2, Response***

This is the first BC Hydro Revenue Requirements where BC Hydro was integrated with BCTC.

- 9.1 BCTC in a number of responses to ESVI IRs in 2007 could not provide the information requested, but instead indicated that BC Hydro would be the best to answer. Those questions included:

*“Do the load forecasts include EE 3, 4 and 5, and their potential effect on peak loads? If not, why not?”*<sup>70</sup>

*“How are the AMI project, time-of-use rate structures, load curtailment, and regional DSM programs incorporated into the load forecasts?”*<sup>71</sup>

<sup>69</sup> Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Section 1.1.4, Aug 12, 2009, Page 11 of 48

<sup>70</sup> BCTC F2008 to F2017 Capital Plan, B-6, ESVI IR #1.1.1.2

<sup>71</sup> BCTC F2008 to F2017 Capital Plan, B-6, ESVI IR #1.1.1.3

Now that BC Hydro and BCTC are now integrated into the same company, please discuss whether or not more efficient operations are anticipated, particularly where there is interaction between load, generation and transmission.

- 9.2 Now that BC Hydro and BCTC are now integrated into the same company, please discuss the feasibility of developing Integrated Non-Wire solutions<sup>72</sup>, where “a key principle is to ensure the process is integrated between transmission, generation and demand”<sup>73</sup>.

## 10.0) DSM

### **Reference:**

***Exhibit B-1-3, New Appendix II, Attachment 8, Page 220 of 250***

- 10.1 It is noted that incremental electrical savings were further reduced from a 8 per cent drop to a 21 per cent drop. Please provide an update to the projections for the future. Please discuss what is being done to improve the outcome.
- 10.2 Please provide the current plan of updating rate structures, including time frames, and compare to last predictions. Include a discussion on the effect on energy savings.

---

<sup>72</sup> Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Section 1.1.4, Aug 12, 2009, Page 11 of 48

<sup>73</sup> Section 5 Transmission Inquiry, ESVI, Exhibit C58-4, Section 1.1.4, Aug 12, 2009, Page 11 of 48