

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

INFORMATION REQUEST ROUND NO: **1**

TO: **BRITISH COLUMBIA HYDRO & POWER AUTHORITY**

DATE: December 23, 2011

PROJECT NO: 3698622

APPLICATION NAME: **F2012-F2014 Revenue Requirements Application (F12-14 RRA)**

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## **1.0 Reference: Other BC Hydro reports**

- 1.1 Please provide copies of all “CEO and Executive Committee reports to the Board of Directors” for the past 5 years.
- 1.2 Please provide copies of all “Quarterly Performance reports” to the Board of Directors for the past 2 years.

## **2.0 Reference: Exhibit B-1-3, Amended Application, Section 3.2, Energy Sales Forecast**

On page 3-2, BC Hydro states that “*The load forecast was updated in March 2011...*” and the Amended Table 3-1 on page 3-7 shows the differences by sector, totaling an increase of 2,168 GWh by F2014.

- 2.1 Is the “March 2011 Update” forecast the same as the forecast filed in the IRP proceeding in December 2010, with the full report filed in March 2011?
- 2.2 Since BC Hydro normally updates its load forecast annually, is BC Hydro intending to release an updated forecast in December or January? If not, when will the updated forecast be released?
- 2.3 What other loads besides FortisBC are included in the “Other” category? Please provide a breakdown of any loads in excess of 100GWh/yr and the history of this breakdown since F2000.
- 2.4 Please provide the history of the four sectors shown in Amended Table 3-1 since F2000. Please also include the history of the number or customer accounts in each sector and the use per customer account in each sector. Please provide these histories, along with the test period projections, in a working Excel model.

## **3.0 Reference: Exhibit B-1-3, Amended Application, Section 3.2.2, Energy Sales Forecast**

The Amended Tables 3-B, 3-C, and 3-D show the breakdown of the load forecast increase attributed to the increase in the pre-DSM load, the reduction in DSM savings, and the reduction in the impact of consumer Price Elasticity.

In the description of Price Elasticity (page 3-9), BC Hydro states, “*The price elasticity impact reflects the lower forecast real rate increases assumed in the Amended F12-F14 RRA, and also includes adjustments for accrued energy sales.*”

- 3.1 Please explain the details as to why the DSM savings forecasts have been reduced.
- 3.2 Please give the details explaining the overlap in codes and standards for residential customers, light industrial/commercial customers, and large industrial customers.
- 3.3 Please explain what is meant by “accrued energy sales”, why they are necessary and what quantities are allowed for.
- 3.4 Please provide the original and amended forecast of real rate increases used for the elasticity calculations and an explanation of the changes to the RIB rate.
- 3.5 What elasticity index is being assumed for customer price responses in each load sector? Please provide copies of any studies BC Hydro has used to support these elasticity indexes.

**4.0 Reference: Exhibit B-1-3, Amended Application, Section 4.1, Cost of Energy**

On page 4-1, BC Hydro states *“The Cost of Heritage Energy is the cost that BC Hydro incurs to provide up to 49,000 GWh per year under the Heritage Contract to serve domestic load obligations.*

*... The Cost of Non-Heritage Energy is also adjusted for net purchases from Powerex.”*

On page 4-2 BC Hydro states *“The March 31, 2011 Deferral Account Report is provided in Amended Appendix P.”*

- 4.1 Please provide a breakdown of how the 49,000 GWh is determined. Has the expectation of 49,000 GWh been adjusted since 2002 to allow for any changes in the Heritage generation assets? Please list any changes in the expected output of the generation assets since 2002, and whether these changes have or have not been reflected in the 49,000 GWh.
- 4.2 Please explain how and why “net purchase from Powerex” affect the Cost of Non-Heritage Energy.
- 4.3 Please provide a copy of the latest Deferral Account Report, dated September 30, 2011.

**5.0 Reference: Exhibit B-1-3, Amended Application, Section 4.1.3, Cost of Energy Overview**

On page 4-3, BC Hydro states, *“The reduction in the average volume of IPP deliveries during the test period is primarily due to the gas-fired Island Cogeneration Plant (ICG) being economically dispatched down due to high fuel cost, including the impact of the Carbon Tax.”.*

On page 4-4, BC Hydro states, *“The forecast... shows both surplus market sales and market purchase volumes for each forecast year, as shown on Schedule 4.0. The increase in likelihood of surplus sales during the test period reflects progress toward self-sufficiency.”*

- 5.1 Please provide a breakdown of the deliveries expected from IPPs over the test period and including the history back to F2008, and showing the 6 most significant IPPs individually.
- 5.2 Please explain how the Carbon Tax is included in the decision to economically dispatch the ICG plant. Please provide the history and forecast of the economics of the ICG dispatch from F2008 to F2014 with the impact of the Carbon Tax shown separately.

- 5.3 During the past year, BC Hydro has been negotiating an arrangement with Bonneville Power Authority to accept energy and return it in different time periods. Please provide the details of the final agreement with BPA. Where is the revenue from this arrangement recorded in BC Hydro's accounts? Does it decrease the net cost of BC Hydro's Heritage or Non-Heritage Energy?
- 5.4 What revenues does BC Hydro earn from the sale of surplus capacity as it is available from time to time during the year? Where is this revenue recorded in the accounts? Does it reduce the net cost of BC Hydro's Heritage or Non-Heritage Energy? Please provide the details of such capacity sales by month, both quantities and dollar amounts, since F2008 and the forecast for the test period.
- 5.5 If surplus energy sales and deficit purchases have different probabilities, how are these probabilities reflected in the quantities and prices shown for sales and purchases in Schedule 4.0?
- 5.6 Where Schedule 4.0 shows "Market Purchases from Heritage" (line 29), how is the transfer price established to transfer these GWhs from Heritage to Non-Heritage Energy? Why is this transaction shown this way, as an in and out amount?
- 5.7 Please give the details of what progress is being made towards self-sufficiency during the test period. How is the increasing probability of surplus sales reflected in Schedule 4.0?

**6.0 Reference: Exhibit B-1-3, Amended Application, Section 4.3, Review of F2011 Cost of Energy**

New Table 4-B on page 4-10 shows lines for "Market Electricity Purchases" and "Domestic Transmission."

- 6.1 What is the meaning of "Domestic Transmission" and how is this cost assessed?
- 6.2 In the "Market Electricity Purchases" how much is included for the cost of transmission to British Columbia and within British Columbia? How are these amounts determined?
- 6.3 How much is included in the "Market Electricity Purchases" for the cost to BC Hydro of storing and shaping this market energy for delivery in different time periods? If this cost is not included in that category then where is it recorded and how much is it?

**7.0 Reference: Exhibit B-1-3, Amended Application, Section 4.4.3.3, page 4-19, Market Electricity Purchases**

BC Hydro states *"Based on the April 2011 Energy Studies, market electricity purchases during the test period are expected to be 1,610 GWh, 1,419 GWh, and 660 GWh for F2012, F2013, and F2014, respectively. These forecasts are higher than the original Application, principally due to the lower forecast of Hydroelectric supply."*

- 7.1 Please explain why there is a "lower forecast of Hydroelectric supply". Has BC Hydro lowered its forecast of the energy generation available under average water conditions?

**8.0 Reference: Exhibit B-1-3, Amended Application, Section 4.4.3.5, page 4-20, Natural Gas for Thermal Generation**

BC Hydro states *“Total costs for Burrard, inclusive of transportation and taxes, are expected to be \$16.4, \$17.1 and \$17.4 million, respectively, compared to a forecast of \$23.2 million for F2011.”*

- 8.1 If these amounts are excluding taxes, what is the amount of Carbon Tax that was incurred for F2011 and is expected for F2012-14?

**9.0 Reference: Exhibit B-1-3, Amended Application, Section 4.4.3.6, page 4-22, Domestic Transmission**

BC Hydro states, *“Transmission costs relating to BC Hydro’s obligations under the Skagit Valley Treaty are included in the Cost of Heritage Energy. They comprise approximately \$11 million per year for wholesale transmission in British Columbia, and approximately \$4 million per year for wholesale transmission in the United States, based on current transmission tariffs.”*

- 9.1 What are the transmission tariffs that the \$11 and \$4 million are based on? How are the tariffs within BC calculated?
- 9.2 Are these transmission costs charged to the electricity purchasers? If not, what amount is charged to the customer and where does the remaining cost go?
- 9.3 The total amount of Domestic Transmission is over \$100 million in F2011. What makes up the additional amount over and above the \$11 million for the Skagit Treaty?
- 9.4 Are the same tariffs charged for imported energy as for this exported energy? Where do the transmission charges on imported energy show in the accounts?

**10.0 Reference: Exhibit B-1-3, Amended Application, Section 4.4.4.3, page 4-28, IPP and Long-Term Purchase Volumes**

Amended Table 4-6 and the accompanying text indicates *“The increase in the purchases from Rio Tinto Alcan over the test period is due to a change in the construction scope and schedule for the Kitimat Modernization Project, resulting in a decreased smelter load until 2014 and increased surplus energy.”*

- 10.1 What is the latest Alcan Modernization schedule information that has been incorporated into this forecast? Is there any more recent information available as of the date of this IR response? If so, what is the latest information?

**11.0 Reference: Exhibit B-1-3, Amended Application, Section 5.4.7, Safety and Technical Training**

BC Hydro states that, *“The Safety and Technical Training KBU performs the following four key functions:*

- *Identifying workplace and public hazards and ensuring they are eliminated or that barriers are*

*installed;*

- *Providing advice about BC Hydro Occupational Safety and Health Standards, WorkSafeBC regulations and other applicable standards, developing safety management plans, and supporting incident management;*
- *Assessing site hazards, providing expert advice during constructability reviews, and developing site-specific safety management plans to support the generation capital program and design of facilities; and*
- *Training of Generation personnel on all applicable safety standards.”*

11.1 Please provide a summary of BC Hydro’s ratings and charges from WorkSafeBC for all the years from F2000 up to the forecast for F2014.

## **12.0 Reference: Exhibit B-1-3, Amended Application, Section 6.2 and 6.3, Capital Expenditures and Capital Additions**

On page 6-2, BC Hydro states “*A capital addition is, in regard to a capital project, the sum of the direct capital expenditures, capitalized overhead, and interest during construction, when the project goes into service. Generally, it is planned capital additions and not capital expenditures that affect a utility’s revenue requirement and rates from year to year.*”

New Tables 6-A and 6-B show the amended Capital Expenditures and Capital Additions for F2011. Amended Tables 6-1 and 6-2 show the Capital Expenditures and Capital Additions for F2012-F2014 by Business Functions.

- 12.1 Please confirm if the Capital Expenditure tables do not include capitalized overhead and interest, but the Capital Additions tables do include those items.
- 12.2 Please provide new tables to show the breakdown of the Capital Additions by year and business function, into direct capital expenditures, capitalized overhead, and interest during construction.
- 12.3 Depending on the answer to the first sub-question above, provide similar tables showing the breakdown of Capital Expenditures if they do include amounts for overhead and IDC.
- 12.4 At what point in time is BC Hydro’s Allowed Rate of Return on Equity (ROE) charged into the revenue requirements calculation in respect of Capital Expenditures and/or Capital Additions? Is the ROE charged immediately on any asset balances, or is it delayed until the capital projects are placed in service?
- 12.5 Is the timing of the ROE charge the same for Deferral Accounts as it is for Capital Expenditure amounts? If not please explain the differences.
- 12.6 Please describe in detail the process by which BC Hydro rations and prioritizes its capital spending plans in order to control the pace of rate increases while ensuring that all standards of safety and reliability are never compromised.

## **13.0 Reference: Exhibit B-1-3, Amended Application, Section 6.11, Properties and Other**

## Capital

On page 6-73, BC Hydro states “*BC Hydro operates and maintains 115 buildings and sites across the province, which house people, equipment and materials required for the operation and maintenance of BC Hydro’s electric system.*” A footnote explains that this excludes generation sites and facilities with substations.

According to the response to BCUC IR 1.261.1, Attachment 2, page 3 of 18, in the F2011 RRA proceeding, as of December 2008, BC Hydro owned a total of 4,015 properties including operating and non-operating sites.

- 13.1 Please explain the difference between the “115 buildings and sites across the province” (other than generation sites and facilities within substations) that is referenced in section 6.11.1, and the 4,015 properties including operating and non-operating sites.
- 13.2 How many properties in total does BC Hydro own as of December 2011?
- 13.3 Please provide a tabular breakdown of these properties showing the number of properties in each category, the approximate area, the approximate book value and the approximate appraised value using whatever categories BC Hydro presently uses to classify its property holdings. Please identify vacant land as a separate category.
- 13.4 On what basis does BC Hydro decide whether to continue to maintain capital investment in properties?
- 13.5 On what basis does BC Hydro decide to invest capital in new properties?
- 13.6 On what basis does BC Hydro decide to dispose of properties?
- 13.7 On what basis does BC Hydro decide to dispose and lease back properties?
- 13.8 Does BC Hydro ever consider disposing of properties to raise capital for other corporate capital purposes?
- 13.9 How many properties has BC Hydro sold in the last 5 years other than those properties relating to the Vancouver Island Transmission line in the Tsawwassen area?
- 13.10 How many properties has BC Hydro sold and leased back in the last 5 years?

## **14.0 Reference: Exhibit B-1-3, Amended Application, Appendix II, Attachment 5, Demand Side Management Plan Tables**

Attachment 5 (pages 149 to 167 of 250 of Appendix II) contains a number of calculated tables.

- 14.1 Please provide the working Excel models of all of these tables, with all the calculation formulas intact, so that the user can follow how the calculations are being done.
- 14.2 Please confirm that the “Net Levelized Costs” shown in Table 10 are the result of deducting non-electrical energy benefits from the “Gross Levelized Costs”.
  - 14.2.1 Where is this calculation prescribed in the California Standard Practices? Or is this a new approach initiated by BC Hydro?

14.2.2 Please provide further Excel models to show how these non-electrical energy benefits are calculated and provide a written explanation of the derivation of the values shown in Table 10.

**15.0 Reference: Exhibit B-1-3, Amended Application, Appendix II, Attachment 6, Demand Side Management Assumptions**

Table 2 (on page 172 of 250 in Appendix II) gives Program-Specific Assumptions in very broad ranges. In an IR response for the F2011 RRA, BC Hydro gave a far more detailed listing of the assumptions by program, in the following format:

	Persistence (years)	Free Riders	Free Drivers	Market Effects	Takeback	Cross Effects
<b>Energy Efficiency Programs</b>						
<i>Residential Sector</i>						
Behaviour	30	0-20%	0-5%	0%	0%	0%
Voltage Optimization	30	0%	0%	0%	0%	0%
Lighting	8-20	5-22%	0%	0-10%	0%	5-8%
Sustainable Community	20	0%	0%	10%	0%	0%
Refrigerator Buy-back	7	24-39%	3-6%	0%	0%	9-27%
Renovation Rebate	20	0-20%	0-15%	0%	0%	0-27%
New Home	20	10-12%	10-12%	0%	0%	0%
Low Income	9-18	2-11%	0%	0%	0%	2-22%
Appliances and Electronics	10-20	5-70%	0-10%	5-15%	0-15%	1-26%
<i>Commercial Sector</i>						
Power Smart Partner	8-30	0-13%	0%	0-10%	0%	0%
Product Incentive	3-30	0-23%	0-14%	0-10%	0%	0%
High Performance Building	5-20	0-25%	0%	10%	0%	0%
Voltage Optimization	30	0%	0%	0%	0%	0%
Sustainable Community	20	0%	0%	10%	0%	0%
Lead by Example	4-18	0%	0%	0%	0%	0%
<i>Industrial Sector</i>						
Mechanical Pulping	n/a	n/a	n/a	n/a	n/a	n/a
Power Smart Partner - Transmission	9 - 10	27%	17%	0-10%	0%	0%
Power Smart Partner - Distribution	8-18	5-20%	0-15%	0%	0%	0%
New Plant Design	30	5%	0%	0%	0%	0%
Lead by Example	4-18	0%	0%	0%	0%	0%
<b>Load Displacement Programs</b>						
Residential	20	10%	0%	0%	0%	0%
Commercial	20	2%	0%	0%	0%	0%
Industrial	30	5%	0%	0%	0%	0%
<b>Total Programs (EE+LD)</b>						

Note 1

Ranges reflect different assumptions for different technologies, measures or timing within the program.

Note 2

Mechanical Pulping is included in Power Smart Partner - Transmission

15.1 Please provide a similarly detailed listing of the updated assumptions being used for each program in the F12-14 RRA with explanations of any changes to the assumptions since the previous RRA.

15.2 Please provide copies of all studies or reports used to estimate or substantiate those assumptions for the following programs:

15.2.1 Residential: Behaviour, Lighting, Refrigerator Buy-back, New Home, Appliances, and Consumer Electronics

15.2.2 Commercial: Product Incentive and New Construction

15.2.3 Industrial: Power Smart Partner Transmission and Load Displacement

15.3 Please provide working Excel models for each of the programs listed above, which show the details as to how the calculation of the unit energy costs is based on the declared assumptions for each program.

**16.0 Reference: Exhibit B-1-3, Amended Application, Appendix II, Attachment 6, Section 3, Savings Persistence**

Table 3 of Section 3 (page 173 of 250 of Appendix II) shows the persistence of several programs being well in excess of 10 years. For instance, Residential Behaviour, Industrial New Plant Design, and Sustainable Communities are shown as 30 years; New Homes and Load Displacement are shown as 20 years; Residential Lighting and Appliances are shown as 14 and 15 years.

16.1 What is the definition of Persistence that has been used in this section, and how does it differ from the simple life-expectancy of the installed equipment?

16.2 How does BC Hydro determine at what point in the future, natural conservation would have achieved the same efficiency, even without the program expenditures?

16.3 For each value in excess of 10 years, please explain how that value was determined, and provide copies of any studies supporting those determinations.

16.4 Please provide the working Excel model, complete with the energy quantity weightings that were used to calculate the weighted average Persistence.

**17.0 Reference: Exhibit B-1-3, Amended Application, Section 6.14, page 6-77, Demand Side Management**

BC Hydro states that:

*“Placeholder allowances for the DSM deferred operating expenditures for the period F2012 to F2014 are provided in Table 6-1 and discussed in section 1.7.1.*

*Updated forecast expenditures for DSM activities for F2012-F2014 are included in Amended Table 6-1. Please refer to Appendix II for additional information on the DSM deferred operating expenditures for the Amended F12-14 RRA.”*

17.1 Since the amounts shown in this Application are only described as “placeholder allowances”, is it BC Hydro’s intention to bring forward the proposed DSM expenditures in a separate proceeding for review approval by the BCUC? If so, what proceeding, and when?