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**Subject:** BC Hydro 2015 RDA - BCOAPO IR1  
**Attachments:** 7615\_20151117\_BCH RDA 2015 - BCOAPO IR #1.docx; 7615\_20151117\_BCH RDA 2015 - BCOAPO IR #1.pdf

Attached please find information requests on behalf of BC Old Age Pensioners' Organization et al.

For the purposes of these information requests, we are defining "low income customers" to mean BC Hydro Residential customers with a before tax annual household income equal to or less than the low income cut-off established by Statistics Canada (LICO). LICO is used in the 2015 RDA engagement modelling and the 2014 REUS. However, since "low income household" is defined in the Demand Side Measures (DSM) Regulation as households at or below LICO plus 30%, many of our DSM-related questions use the DSM Measures Regulation definition of low income.

Please contact us if you have any questions about the definition of "low income" in these information requests.

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REQUESTOR NAME: BCOAPO  
INFORMATION REQUEST ROUND NO: 1  
TO: BRITISH COLUMBIA HYDRO & POWER  
AUTHORITY  
DATE: November 17, 2015  
APPLICATION NAME: 2015 Rate Design Application (2015 RDA)

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## **CHAPTER 1 - INTRODUCTION**

### **1.0 Reference: Exhibit B-1, pages 1-18 and 1-19**

**Preamble:** Default rates are rates that all customers pay unless they have options and choose to opt for another rate. (page 1-19)

1.1 Is there only one default rate (schedule) that is applicable to each Rate Class set out in Table 1-1?

1.1.1 If yes, please indicate for each class what that rate schedule is.

1.2 If there are rate classes where more than one default rate (schedule) applies, please indicate what these rate schedules are and describe the differences in the characteristics of the customers served under each.

1.2.1 Please explain why each of these separate groups of customers is not considered to be a “rate class” for purposes of the RDA.

### **2.0 Reference: Exhibit B-1, page 1-19**

2.1 Please clarify, with reference to its Cost of Service Study (COS) results, what BC Hydro considers as “demand-related costs” (per line 24).

### **3.0 Reference: Exhibit B-1, page 1-20 and Section 2.2**

**Preamble:** Section 1.5.1 makes reference to the Bonbright’s eight rate design criteria and then goes on to state that it prioritizes the three Bonbright rate design criteria set out in Table 1-2.

3.1 Please specifically describe how the factors identified in section 1.1.1 led to BC Hydro prioritizing the three Bonbright criteria set out in Table 1-2.

### **4.0 Reference: Exhibit B-1, page 1-21 & 1-21**

4.1 How did BC Hydro determine the stakeholders that should be involved in its RDA workshop process?

### **5.0 Reference: Exhibit B-1, page 1-25**

5.1 Please produce a schedule showing the derivation of the \$950,000 impact to F2016 net income given that the updated Minimum

Reconnection Charge will be implemented on an interim basis on December 1, 2015.

**6.0 Reference: Exhibit B-1, page 1-25**

- 6.1 Please outline all instances where the F2016 COS was used to inform the rate design proposals set out in the current application.

**CHAPTER 2 – STAKEHOLDER ENGAGEMENT AND RATE DESIGN EVALUATION**  
**METHODOLOGY**

**7.0 Reference: Exhibit B-1, page 2-4**

- 7.1 Please describe how, if at all, the requirement under subsection 60(1)(b) “to encourage public utilities to increase efficiency, reduce costs and enhance performance” is reflected in the rate design criteria (page 1-20) and the other considerations underpinning the 2015 RDA proposals.

**8.0 Reference: Exhibit B-1, page 2-4 through page 2-6**

- 8.1 Please describe how, if at all, the British Columbia energy objectives (as set out in Section 2 of the *Clean Energy Act*) are relevant to the 2015 RDA and influenced BC Hydro’s prioritization of the rate design criteria as set out in Table 1-2.

**9.0 Reference: Exhibit B-1, Section 2.2, p. 2-5, Footnote 38**  
**Rate Increases/Rate Caps**

**Preamble:** The Application states the following:

“The Rate Comparison Regulation, B.C. Reg. 119/2011 provides that BC Hydro is to provide the B.C. Minister of Energy and Mines with a report that includes a comparison of BC Hydro’s rates with those of at least one public utility in each of 15 other jurisdictions in North America, including the provinces of Alberta, Manitoba, Ontario and Quebec, and the states of Washington, Oregon and California; <https://www.canlii.org/en/bc/laws/regu/bc-reg-140-2009/latest/bc-reg-140-2009.html> BC Hydro used the Rate Comparison Regulation to inform the scope of its various jurisdictional assessments as described in section 2.4.2 of the Application”

- 9.1 Please provide a copy of the most recent Rate Comparison Report provided to the BC Minister of Energy and Mines.

**10.0 Reference: Exhibit B-1, page 2-7**

- 10.1 In BC Hydro’s understanding/interpretation, do retail customers (lines 16-22) include transmission connected consumers?

**11.0 Reference: Exhibit B-1, pages 2-13 and 2-14**

- 11.1 Does BC Hydro consider the principles underlying the Domestic Long-Term Sales Contract Regulation (as they pertain to the treatment and

recovery of the costs of interconnecting to the BC Hydro transmission system and any system upgrades) to be of relevance to the Transmission Extension policy, which is the subject of 2015 RDA Module 2?

**12.0 Reference: Exhibit B-1, pages 1-20, 2-14 and 2-23**

12.1 Please explain why “encouraging” energy efficiency was not adopted as one of the prioritized rate design criteria, particularly in light of the residential focus group feedback (page 2-23, lines 22-23).

**13.0 Reference: Exhibit B-1, page 2-16 (lines 9-16)**

13.1 In BC Hydro’s view, does the MEM Policy Letter require/obligate the Commission to exempt SFU and YVR from RS 1823 and other stepped rates?

**14.0 Reference: Exhibit B-1, pages 2-22 to 2-23**

14.1 Did the Residential Focus Group sessions canvas the participants as to any specific concerns they had regarding BC Hydro’s residential rates?

13.1.1 If yes, what feedback was received?

**15.0 Reference: Exhibit B-1, page 2-30 (lines 19-20)**

15.1 What were the other three policy objectives that “grounded” BC Hydro’s 1991 RDA?

15.2 Please discuss the extent to which each of the four policy objectives are applicable in the context of the 2015 RDA.

**16.0 Reference: Exhibit B-1, pages 2-32 through 2-34**

16.1 Have any of the Government responses set out in Table 2-2 been superseded or altered as result of subsequent government policy statements, regulations or legislation?

15.1.1 If yes, please indicate what the revised government response/position is.

**17.0 Reference: Exhibit B-1, pages 2-37 to 2-39**

17.1 Were there policy objectives that “grounded” BC Hydro’s 2007 RDA?

16.1.1 If yes, what were they, and are they still applicable in the context of the current 2015 RDA?

**18.0 Reference: Exhibit B-1, page 2-44**

18.1 While BC Hydro’s current load curtailment program is not viewed as a “rate” or a “service”, would it not be possible for BC Hydro to design a rate for non-firm service (i.e., service that could be curtailed under certain circumstances) for transmission customers and for which the customers

would pay a different rate and that would qualify as rate and service under Section 1?

17.1.1 If not, please explain why?

17.1.2 If not, please explain how such an approach would differ, in principle, from the Residential E-Plus Rate.

**19.0 Reference: Exhibit B-1, page 2-46**

**Preamble:** BC Hydro notes that the standard economic technique used to determine LRMC is to calculate the minimum present-day view of the cost of meeting a permanent increment (or decrement) of demand.

19.1 It is noted that BC Hydro's calculation of LRMC is based on the cost of meeting an increment in demand. Would the calculation and resulting LRMC differ if the approach was based on the cost savings from a decrement in demand?

19.2 Will these resources (i.e. those listed at lines 22-25) also be sufficient to meet BC Hydro's capacity needs over the next 10 years?

18.2.1 If not, what other resources will need to be relied on?

**20.0 Reference: Exhibit B-1, page 2-48, lines 1-10**

20.1 Given that Site C comes into service in F2025, why is it not included in the list of resources (lines 6-10) being used to meet expected energy future energy needs?

**21.0 Reference: Exhibit B-1, page 2-48, lines 18-27**

21.1 Why are the RIB rate and RS1823 considered "future DSM initiatives" (per lines 26-27) when they are already in place?

21.2 What does the "Load Forecast Before DSM" shown in Figure 2-1 assume with respect to the existence and the impact of the Residential RIB rate and RS1823 in F2017 and beyond?

**22.0 Reference: Exhibit B-1, page 2-49 to 2-50**

**Preamble:** Given the 2015 RDA also discusses the treatment of capacity long-run marginal costs in determining the LRMC to be used for rate making it is necessary to fully understand the basis for the energy LRMC proposed by BC Hydro.

22.1 Please explain more fully what is meant by "net TRC" in the context of DSM programs. In particular, please clarify whether the participant and utility costs, which according to Footnote 95 form the basis for the overall TRC (economic cost) of DSM initiatives, have been reduced by netting out: a) generation capacity benefits, b) transmission capacity benefits, c)

distribution capacity benefits, d) non-energy benefits, and e) natural gas savings benefits.

22.2 What was the basis for the generation capacity benefit that was netted from the TRCs for the various DSM programs set out in Table 9-7 of the 2013 IRP?

21.2.1 If it differs from the UCC of Revelstoke Unit 6, please explain why.

21.2.2 If it differs from the UCC for Revelstoke Unit 6, please recalculate the net TRC values for each of the DSM programs using Revelstoke Unit 6 as the basis for the generation capacity benefit.

21.3 For each DSM program listed in Table 9-7 from the 2013 IRP please indicate the value (in both \$/kW and \$/kWh using the same F2013\$ as Table 9-7)) attributed to each of the generation, transmission and distribution capacity benefits.

21.4 With respect to the net TRC values presented in Table 9-7 (from the 2013 IRP) please indicate: a) what period the values are levelized/calculated over, and b) whether the values represent the real LRMC values (in F2013\$).

21.5 Please re-state the DSM options net TRC costs as shown in Table 9-7 in F2016\$ so as to make them comparable with the EPA renewal costs cited on page 2-50.

**23.0 Reference: Exhibit B-1, page 2-50, lines 1-6**

23.1 Please clarify what is meant when the Application states that DSM Option 3 would “entail no changes to BC Hydro’s rate structures.”

23.2 The wording at lines 1-4 suggests that, as compared to DSM Option 3, Recommended Action 1 in the 2013 IRP does include “changes to BC Hydro’s rate structure”. Please confirm whether or not this is the case.

22.2.1 If yes, specifically what changes to BC Hydro’s rate structures were envisioned in Recommended Action 1 on DSM.

**24.0 Reference: Exhibit B-1, page 2-54**

24.1 Given the requirement of the *Clean Energy Act*, Section 2(c), is there a limit to the amount of natural gas-fired simple-cycle gas turbine generators that could be installed to meet generation capacity requirements?

23.1.1 If yes, how does this affect the use of SCGTs as a benchmark for capacity long-run marginal cost?

**25.0 Reference: Exhibit B-1, page 2-55**

25.1 Is it BC Hydro’s view that the LRMC used for rate making should not: a) include avoided transmission costs when considering RS 1823, and b)

should not include avoided transmission and distribution costs when considering the RIB rate?

- 25.2 What are the avoided transmission and distribution costs associated with Residential service? Please provide the F2013\$ values both in \$/kW and in \$/kWh based on the Residential load profile?
- 25.3 What are the avoided transmission costs for RS1823 customers? Please provide the F2013\$ values in both \$/kW and \$/kWh based on the load profile for transmission service customers.
- 25.4 Please provide revised versions of Tables 2-5 and 2-6 with an additional column that sets out the value for the Upper End of the Energy LRMC plus the Rev 6 UCC, adjusting for losses as necessary.

**26.0 Reference: Exhibit B-1, pages 2-59 & 2-66**

- 26.1 Please clarify whether in applying the 10% impact test, BC Hydro looks at the impact on: a) the most adversely affected customer in the entire Residential class, or b) the most adversely affected customer in its representative sample of 10,000.

25.1.1 If response is (b), please indicate (based on the last 12 months of available billing data) how many Residential customers use: i) less electricity than the customer in the representative sample with the lowest use and ii) more electricity than the customer in the representative sample with the highest use.

25.1.2 If response is (b), please indicate (based on the last 12 months of available billing data): i) what average monthly usage is for the lowest use Residential customer overall vs. the lowest use customer in the representative sample, and ii) what the average monthly usage is for the highest use Residential customer overall vs. the highest use customer in the representative sample.

**CHAPTER 3 - COST OF SERVICE**

**27.0 Reference: Exhibit B-1, pages 3-1 & 3-37 and Appendix E, COSS – Schedule 4.1**

- 27.1 With respect to Table 3-7, please provide a revised version that sets out for each Rate Class:
- (a) The energy, demand and customer costs (in dollars) allocated per COSS Schedule 4.1;
  - (b) A breakdown of “customer costs” separating out that portion of the distribution system’s substations, primary system, transformers and secondary system that has been classified as “customer-related” and allocated to the rate classes;
  - (c) A breakdown of “demand costs” separating out that portion that is allocated based on 4CP vs. NCP;
  - (d) The F2016 customer count, billed energy and billing demand (where applicable) determinants by class as used in establishing the forecast revenues by customer class in the COSS per Appendix E;

- (e) The ratio of: i) allocated energy costs per billing kWh (Note- for classes that are not billed using demand also include the demand costs in this calculation), ii) allocated demand costs per billing kW (for applicable classes) broken down per point (c), and iii) allocated customer costs broken down per point (b) per customer per month.

**28.0 Reference: Exhibit B-1, page 3-6 (lines 20-22) and pages 3-7 to 3-11**

- 28.1 The Application makes note of the Commission's decision regarding FortisBC's 2009 Rate Design/COS Application. Please indicate how the COS Methodology as proposed by BC Hydro for the 2015 RDA aligns with the Commission's directives in the FortisBC decision regarding COS methodology.
- 28.2 Please contrast how FortisBC's COS methodology (as approved by the BCUC) contrasts with BC Hydro's proposals with respect to the key issue areas noted at page 3-7 (lines 11-13).

**29.0 Reference: Exhibit B-1, pages 3-11 and 3-36**

- 29.1 Please provide the R/C Ratios that would result if the methodology approved in the 2007 RDA Decision was applied using the F2016 costs and updated load profiles/allocators as discussed on page 3-11, lines 9-18.
- 29.2 Using the COSS results per part (1), please provide a schedule that sets out for each Rate Class:
  - (a) The energy, demand and customer costs (in dollars) allocated;
  - (b) A breakdown of "customer costs" separating out that portion of the distribution system's substations, primary system, transformers and secondary system that has been classified as "customer-related" and allocated to the class;
  - (c) A breakdown of "demand costs" separating out that portion that is allocated based on 4CP vs. NCP;
  - (d) The F2016 customer count, billed energy and billing demand (where applicable) determinants by class as used in establishing the forecast revenues by customer class in the 2015 RDA; and
  - (e) The ratio of: i) allocated energy costs per billing kWh (Note- for classes that are not billed using demand also include the demand costs in this calculation), ii) allocated demand costs per billing kW (for applicable classes) broken down per (c), and iii) allocated customer costs broken down per point (b) per customer per month.

**30.0 Reference: Exhibit B-1, page 3-12 to 3-13**

- 30.1 Prior to 2013, did BC Hydro rely on load research work to develop the load profiles for all of its rate classes, or did some classes have interval metering for billing purposes from which the data could be used?
- 30.2 For each customer class please indicate the % of customers that have interval meters for billing purposes.

30.3 Does the enhanced 45,000 sized sample yield 1% accuracy at the 99% level for all rate classes?

**31.0 Reference: Exhibit B-1, page 3-14**

31.1 Please provide a copy of the analysis supporting BC Hydro's determination that the actual GRTA costs ranged between \$42.6 M and \$44.2 M in the F2012-2014 period.

31.2 Please briefly describe how functionalizing these costs as generation costs as opposed to transmission changes their classification and allocation to customer classes.

**32.0 Reference: Exhibit B-1, page 3-14**

32.1 Does BC Hydro receive transmission-related revenues for Powerex's use of its transmission system to make energy sales?

32.2 If yes, are these revenues treated as an offset to the costs functionalized as transmission in the COSS?

**33.0 Reference: Exhibit B-1, page 3-15 to 3-19**

33.1 Please provide a schedule that lists BC Hydro business groups (at the level of detail shown in the RRA financial model, Schedules 5.1 to 5.4), their O&M costs for F2016, and the functional area(s) to which they were mapped. For those business groups that provide services to multiple functional areas, please indicate all of the functional areas involved and what % of the total costs are actually attributable to the functional area the costs are mapped to in the COSS.

33.2 Please confirm that the approach outlined at 3-17, lines 12-14 was used for Corporate Groups which effectively support all areas of the Corporation (e.g. Executive, Human Resources, SH&E and Finance) and not the approach set out at page 3-15, lines 20-22.

33.3 How were the taxes assigned to the Corporate Groups in the RRA financial model functionalized in the COSS?

33.4 Would a bottom-up approach for O&M, including IT operating costs (as described on page 3-16 and 3-17) have a material (>5%) impact on the quantum of energy vs. demand vs. customer-related costs allocated to each rate class?

**34.0 Reference: Exhibit B-1, page 3-15 to 3-22**

**Preamble:** The written Application does not appear to explain how the Non-Tariff, Inter-Segment and Other Utility Revenue shown in the RRA financial model (Schedule 1, lines 7, 8 & 20) were functionalized.

34.1 Please describe the sources of Non-Tariff, Inter-Segment and Other Utility Revenue for F2016 and indicate how they were functionalized, with supporting rationale.

**35.0 Reference: Exhibit B-1, page 3-19**

35.1 What is the rationale for the specific Generation, Transmission and Distribution percentages used in the functionalization of DSM costs?

**36.0 Reference: Exhibit B-1, page 3-21 and 3-27**

36.1 Please provide the rationale for the change in the classification of interest on deferral accounts as described at lines 10-13.

36.2 Please provide a schedule that set out the classification approach for: a) the Recovery associated with the TIDA and b) the interest on each of the TIDA. In doing so please indicate specifically where in Appendix E the classification for each is found.

36.3 If the classification of the recovery is not the same as for the classification of the interest, please explain why different methodologies are used for each.

36.4 Please provide a schedule that sets out the classification approach for: a) the Recovery associated with the TIDA and b) the Powerex Net Income. In doing so, please indicate specifically where in Appendix E the classification of each is found.

35.4.1 If the classification approaches are different, please explain why.

**37.0 Reference: Exhibit B-1, pages 3-23 to 3-25**

37.1 Throughout section 3.7.1, frequent use is made of the term "Generation". Please confirm that in each case the reference is to "Heritage Hydro Generation". For example, in lines 7-8, please confirm that BC Hydro is expressing a preference for a 55% energy/45% demand split for Heritage Hydro Generation and not all Generation.

37.2 How does the choice between classification methods for Heritage Hydro Generation impact the quantum of energy vs. demand-related costs allocated to each rate class? Please provide a schedule that sets out separately the Generation Demand and Energy Costs that are allocated to each rate class using each method, where Total Generation cost will be the (\$2,595.3 M) shown in the COSS, Schedule 2.0.

37.3 Does the system load factor calculation used for Heritage Hydro Generation exclude the load in the Fort Nelson Service Territory?

36.3.1 If not, why not given that FNG (like IPPs) is classified separately?

**38.0 Reference: Exhibit B-1, page 3-25 and Appendix E, F2016 COSS - Schedule 2.0**

38.1 At page 3-25 BC Hydro proposes different classification treatments for each of FNG, PRG and Burrard as compared to that proposed for Heritage Hydro Generation. However, in Schedule 2.0 all Thermal O&M costs are classified on the same basis as Heritage Hydro Generation. Similarly, all Depreciation, Taxes and Finance charges associated with

Generation (including Thermal Generation) are classified on the same basis as Heritage Hydro Generation. Please reconcile and clarify what classification was used for Heritage Thermal Generation.

- 38.2 Please set out separately the classification of the costs (excluding Fuel) for each of FNG, PRG and Burrard using the approaches described at page 3-25.
- 39.0 Reference: Exhibit B-1, page 3-27 (lines 1-3) & pages 2-47 to 2-49 and Appendix E, F2016 COSS - Schedule 2.0**
- 39.1 At page 3-27 it states that BC Hydro believes the classification of Generation-related DSM costs should mirror the classification of overall Generation costs. However, in Schedule 2.0 of the COSS all Generation-related Depreciation and Amortization (including that for DSM) is classified on the same basis as Heritage Hydro Generation (45%-D/55%-E). Please reconcile.
- 39.2 Please confirm that the alternatives to DSM are undertaking IPP EPA renewals and initiating new green-field IPP clean or renewable acquisition processes.
- 38.2.1 If not confirmed, what are the alternatives to DSM?
- 38.2.2 If confirmed, why wouldn't it be more appropriate to classify Generation-related DSM using the same percentages for demand and energy as proposed for IPPs?
- 40.0 Reference: Exhibit B-1, pages 3-27 to 3-29; Appendix C-2A – Leidos Report (December 2013) and Reimer Report (May 2010)**
- 40.1 Please provide a schedule that indicates the proposed methodology and resulting classification percentages for Substations, Primary, Transformers, Secondary, Services and Services as recommended by each of the consultants (Leidos and Reimer).
- 40.2 The 2015 RDA states (page 3-28) that the COS consultants recommended approach (3) – use of professional judgement to separate demand-related and customer-related distribution costs. Please provide the relevant references for the Leidos and Reimer Reports where this recommendation can be found.
- 40.3 At page 3-29 BC Hydro states that Bonbright rejects the minimum system and zero-intercept methodologies. What approach does Bonbright view as being acceptable?
- 40.4 Please re-do Tables 27 and 28 from the Reimer Report using the F2016 Revenue Requirement and BC Hydro's' proposed functionalization (and sub-functionalization) of costs. Please add a row to each Table reflecting BC Hydro's recommended approach for each Distribution "sub-function".
- 40.5 Please provide a new Schedule based on the results from part (4) that sets out the total demand and total customer-related costs allocated to

each rate class based on each of the seven methods (i.e., the 6 reported in the original Table 28 plus BC Hydro's approach).

**41.0 Reference: Exhibit B-1, pages 3-29 to 3-30**

41.1 Does the choice of classification methods for SMI materially impact the quantum of energy vs. customer-related costs allocated to each rate class?

**42.0 Reference: Exhibit B-1, page 3-31**

42.1 Is the same 6% distribution loss factor used for all distribution customers regardless of their service voltage?

42.1.1 If yes, do all distribution customers have the same notional metering point (i.e., the point at which energy is assumed to delivered and measured for billing purposes)?

**43.0 Reference: Exhibit B-1, page 3-33 and 3-13**

43.1 For the current 2015 RDA, for how many of the five years of data used in determining the NCP values was based on the broader sample of data available from SMI reads vs. load research work.

43.2 For the Residential class, please provide the ratio of 1 NCP (kW) to total energy (kWh) for each of the five years used in the averaging and indicate which years are based on SMI reads.

**44.0 Reference: Exhibit B-1, pages 3-34 to 3-35**

44.1 Please provide a schedule that sets out all of the COSS methodology changes as between the 2007 RDA (as approved by the Commission) and the currently proposed methodology.

**45.0 Reference: Exhibit B-1, pages 3-33 to 3-34 and Appendix E, COSS – Schedules 3.2**

**Preamble:** Schedule 3.2 reports Distribution Transformer-related costs of \$142.7 M and calculates the value by applying the percent of distribution assets (excluding street lighting) that are accounted for by transformers for Sheet 6.0 to the difference between the values reported in Schedule 2.2 at cells D76 and D73. In principle these two cells should represent the total value of all distribution assets and the total value of street lighting assets respectively. However, D73 represents the Internal Allocations functionalized as Distribution and H76 represents the costs directly assigned to Street Lighting. There appears to be a similar issue with the calculation of the values reported in cell F5.

45.1 Please review the formulae used in Schedule 3.2 and address the issues outlined in the preamble.

**46.0 Reference: Exhibit B-1, pages 3-33 to 3-34 and Appendix E, COSS – Schedules 5.4**

46.1 Please explain how the breakdown between OH and UG transformers set out in Row 12 was done.

46.2 Please confirm that the allocation to rate classes was done use Option 1 (Direct Assignment) per the October 7, 2014 Workshop Presentation.

45.2.1 If not, how was the allocation performed?

**47.0 Reference: Exhibit B-1, pages 3-33 to 3-34 and Appendix E, COSS – Schedules 6.0**

47.1 With respect to the year-end asset values used in Schedule 6.0, please clarify whether these are gross or net book values and whether or not they are net of capital contributions received from third parties.

47.2 Please explain why the asset value selected is appropriate for assigning to Distribution sub-functions each of the following:

- (a) Operating Costs;
- (b) Depreciation; and
- (c) Financing Costs.

**48.0 Reference: Exhibit B-1, pages 1-1 & 1-2, and Section 3.1.2 Rate Increases and next Rate Design Application**

48.1 BC Hydro states that rate caps will be in place until 2019, and that it will file an F2019 COS. When does BC Hydro expect to file its next RDA?

48.2 Will the next RDA be filed as part of the proposed F2019 COS?

48.3 What are BC Hydro's projected rate increases for 2016-2025?

**CHAPTER 4 – RATE CLASS DETERMINATION**

**49.0 Reference: Exhibit B-1, pages 4-3 to 4-5 and 4-8**

**Preamble:** At page 4-8, BC Hydro states that “Low load factors are indicative of customers that are more costly to serve, and load factor is therefore a consideration when evaluating rate class segmentation”. Given this acknowledged relationship between load factor and cost to serve, information regarding load factor characteristics of customers within a class may also be useful for rate design and well as class segmentation purposes.

49.1 Please provide an assessment of the relationship between individual Residential customers' annual energy use and load factor that indicates whether there are any changes in load factor as annual energy use increases and, if so, where the “break points” exist. In doing so, please calculate using each of the following definitions of load factor:

49.1.1 Total average energy use vs. a customer's demand coincident with overall system peak demand (4CP).

49.1.2 Total average energy use vs. a customer's demand coincident with the Residential class NCP.

**50.0 Reference: Exhibit B-1, page 4-5 and 5-51**

**Preamble:** BC Hydro concludes that the impact of making Residential E-Plus customers a separate class was too insignificant to justify such a change.

50.1 What is the annual energy use of Residential E-Plus customers?

50.2 Page 5-51 discusses the R/C ratios for portions (i.e., heating and non-heating load) of Residential E-Plus customers' load but not overall values. If Residential E-Plus customers were a separate rate class what would be its overall R/C ratio under the following two circumstances:

- (a) Generation energy costs are not assigned to Residential E-Plus heating load; and
- (b) Generation energy costs are assigned to Residential E-Plus heating load.

50.3 Given the proposed changes to the terms and conditions for Residential E-Plus, what would be its overall R/C ratio if no energy or capacity related costs were allocated?

**51.0 Reference: Exhibit B-1, page 4-9 (lines 5-13)**

51.1 In 2009, did E3 recommend a breakpoint for the LGS vs. MGS classes and, if so, what was it?

**52.0 Reference: Exhibit B-1, page 4-10 (lines 6-19)**

**Preamble:** BC Hydro concludes at lines 11-12 that "a customer's coincident peak demand is a major consideration in segmenting customer classes". However, at lines 17-19, BC Hydro also concludes that "since distribution costs are assigned proportionate to NCP, the cost per NCP kW does not vary and a \$/kW analysis cannot be used to identify cost differences between segments".

52.1 Please confirm that for Generation and Transmission demand costs the costs are assigned proportionate to 4CP and the costs per 4CP does not vary by the customer's size.

52.2 Please explain why a customer's coincident peak demand is considered a major consideration in segmenting classes but a customer's contribution to NCP cannot be used.

**53.0 Reference: Exhibit B-1, page 4-12**

- 53.1 With respect to Figure 4-2 please clarify whether the coincident demand costs for each group are divided by a) the NCP for the group or b) the sum of the maximum monthly demands for each customer in the group (i.e., total billing demand for the group).
- 53.1.1 If NCP was used, please explain why this appropriate/relevant for segmentation purposes.
- 53.1.2 If NCP was used, please re-do Figure 4-2 where the coincident demand costs for each group are divided by the billing demand for the group (i.e. the sum of the peak demands of the individual customers).
- 53.2 Please provide a figure, similar to Figure 4-2 where the Distribution-demand related costs that would be allocated to each segment are divided by the billing demand for the group.
- 53.3 Please provide a figure, similar to Figure 4-2, where the sum of the Generation-related demand costs, Transmission costs and Distribution-related demand costs that would be allocated to each group is divided by the billing demand for the group.
- 54.0 Reference: Exhibit B-1, page 4-18 and Appendix C-5A, page 137 of 292**
- 54.1 With respect to the analysis presented in Workshop 5 (lines 20-24), please clarify how the load factor was determined for each customer and, in particular, what was used as the denominator in the calculation (e.g. was it the individual customer's average maximum monthly demand?).
- 55.0 Reference: Exhibit B-1, page 4-19 and Appendix C-1B, page 40 of 115**
- 55.1 Please provide a revised version of the table at slide 40 that indicates for each of the 15 segments, the percentage of total energy purchases that were Tier 2 purchases.
- 56.0 Reference: Exhibit B-1, pages 4-26**
- 56.1 BC Hydro notes that the nature of the service is similar as between RS1702, RS1703 and RS 1704. However for RS 1703 BC Hydro owns the pole whereas for the other two rate schedules it does not. Does BC Hydro plan to account for this difference in its examination of street lighting rate design as part of RDA Module 2?
- 56.2 Will BC Hydro take into account in considering the creation of two street lighting customer classes the fact that some customers currently on RS 1755 own the pole whereas in other cases they do not?

## **CHAPTER 5 – RESIDENTIAL RATE DESIGN**

- 57.0 Reference: Exhibit B-1, page 5-3**

- 57.1 Please provide a schedule that sets out the MWh of conservation delivered by the RIB rate in each of the years up to (and including) F2015.
- 58.0 Reference: Exhibit B-1, page 5-5**
- 58.1 With respect to lines 8-12, how were the Step 1 and basic charge jointly set so as to achieve revenue neutrality?
- 58.2 Please provide a schedule that sets out the monthly usage by Residential customers (overall) broken down by each 10th percentile of increasing customer use. (i.e., what is the monthly usage below which 10% of customers fall, 20% of customers fall on up to 90% and then 100%).
- 58.3 Please provide a similar schedule to that in part (2) but for low income customers.
- 59.0 Reference: Exhibit B-1, page 5-10 to 5-12**
- 59.1 Please explain why all of the consumption statistics quoted are based on median use as opposed to average use.
- 57.1.1 In each case where the median value is quoted please provide the average value as well.
- 59.2 Please provide a schedule that set outs out the average and median consumption by dwelling type.
- 59.3 Please provide schedules that set for each of the regions:
- (a) The number of accounts by dwelling type;
  - (b) The total consumption by dwelling type; and
  - (c) The median and average use by dwelling type.
- 59.4 Please provide a schedule that sets the median and average per account for dwellings with electric heating vs. non-electric heating.
- 59.5 Please provide schedules that set out for each region:
- (a) The number of accounts with electric heating vs. non-electric heating;
  - (b) The consumption of the accounts with electric heating vs. non-electric heating; and
  - (c) The median and average use per dwelling for accounts with electric heating vs. non-electric heating.
- 59.6 For each region, by dwelling type please provide schedules that set out:
- (a) The number of accounts with electric heating vs. non-electric heating;
  - (b) The consumption of the accounts with electric heating vs. non-electric heating; and
  - (c) The median and average use per dwelling for accounts with electric heating vs. non-electric heating.
- 60.0 Reference: Exhibit B-1, pages 5-12 to 5-14**

**Preamble:** Each of the following questions refers solely to low income Residential accounts.

- 60.1 Please provide a schedule that sets out a breakdown of the number of low income customers by region, the consumption of low income customers by region and the resulting median and average use by region.
- 60.2 Please provide a schedule that set outs out the average and median consumption by dwelling type for low income customers.
- 60.3 Please provide schedules that set out the following for low income customers for each of the regions:
- (a) The number of accounts by dwelling type;
  - (b) The consumption by dwelling type; and
  - (c) The median and average use by dwelling type.
- 60.4 Please provide a schedule that for low income customers sets the median and average per account for dwellings with electric heating vs. non-electric heating.
- 60.5 Please provide schedules that for low income customers set out for each region:
- (a) The number of accounts with electric heating vs. non-electric heating;
  - (b) The consumption of the accounts with electric heating vs. non-electric heating; and
  - (c) The median and average use per dwelling for accounts with electric heating vs. non-electric heating.
- 60.6 For each region, by dwelling type please provide schedules that for low income customers set out:
- (a) The number of accounts with electric heating vs. non-electric heating,
  - (b) The consumption of the accounts with electric heating vs. non-electric heating, and
  - (c) The median and average use per dwelling for accounts with electric heating vs. non-electric heating.
- 61.0 Reference: Exhibit B-1, page 5-17 and Appendix C-3B, page 132 of 609**
- 61.1 If customers with bi-monthly use of 1,350 to 2,400 kWh have a Step 2 price elasticity of -0.13 and customers over 2,400 kWh have a Step 2 price elasticity of -0.16 to -0.18, then how can the overall Step 2 price elasticity be in the range of -0.08 to -0.13?
- 62.0 Reference: Exhibit B-1, pages 5-24 – 5-25**
- 62.1 Please provide a plot similar to Figure 5-14 for each of the following (total as well as by region if practical):
- (a) Apt & Electric Heat;
  - (b) Apt. & Electric Heat & LI;

- (c) Single Detached & Electric Heat; and
- (d) Single Detached & Electric Heat & LI.

62.2 Please provide Tables similar to 5-3 and 5-4 for each of the results set out in part (1).

**63.0 Reference: Exhibit B-1, pages 5-26 to 5-27**

- 63.1 Which participants did not support only advancing Three Step A for purposes of the RDA?
- 63.2 Which participants' comments were given the most weight in determining what alternatives should be advanced to the 2015 RDA and why?
- 63.3 Does BC Hydro consider the Energy LRMC (Upper Limit) plus the UCC of Revelstoke 6 to be the relevant maximum value for LRMC for purposes of the 2015 RDA for all customer classes? If not, what is the maximum value for each class and why?
- 63.4 Please provide separate versions of Figure 5-16 that just include:
  - (a) Low Income Customers
  - (b) Low Income Customers with Electric Heat

**64.0 Reference: Exhibit B-1, page 5-31**

64.1 What percentage of low income customers with electric heat are better off under the Three Step A alternative as compared to the existing RIB rate?

**65.0 Reference: Exhibit B-1, page 5-34 to 5-35 and page 5-30**

**Preamble:** Page 5-30 provides an assessment of Option 1 against the Bonbright criteria based on expected F2017 rates.

65.1 Based on the anticipated rates for F2018 and F2019 please provide a comparative analysis of Options 1 and 2 using the Bonbright Criteria.

**66.0 Reference: Exhibit B-1, page 5-35**

- 66.1 Please provide the rates that would result from a 3rd Option (Option 3) where the Step 2 rate is increased at inflation and the Step 1 rate is increased so as to maintain revenue neutrality.
- 66.2 Please provide the equivalent to Figures 5-20 through 5-24 and Tables 5-9 & 5-10 based on this option.

**67.0 Reference: Exhibit B-1, pages 5-41 to 5-42 and Appendix C-3B, page 29 of 609**

- 67.1 What percentage of customer-related costs did the Residential basic charge recover at the time of the last RDA?
- 67.2 Please clarify what is meant by customer-related costs and indicate what the dollar value for customer-related costs is for the Residential class

based on the F2016 COSS, providing the necessary cross-references to the F2016 COSS – per Appendix E.

67.3 Based on the F2016 Residential billing determinants (i.e., customers and energy) please provide the calculations demonstrating that the current F2016 basic charge recovers 45% of customer-related costs.

67.4 It is noted that Slide 28 from Workshop 9a uses the term “fixed cost” as opposed to “customer-related costs”. What is the definition of fixed costs used in this context, is it the same as BC Hydro’s definition of customer-related costs and, if so, how has BC Hydro ensured the definitions are comparable?

**68.0 Reference: Exhibit B-1, pages 5-42 to 5-43**

68.1 Please provide, with reference to the COSS in Appendix E, the calculation indicating \$15 is roughly equivalent to the average fixed distribution and customer-related cost per month.

**69.0 Reference: Exhibit B-1, page 5-44 to 5-45**

69.1 Are the values used in Figure 5-25 and Table 5-11, actual or weather normalized?

69.2 If actual, please provide a comparable figure using weather normalized values.

69.3 If median use on a weather normalized basis is not available, please provide average weather normalized use for each of the seven years.

69.4 Please repeat Figures 5-26 and 5-27 for customers:

- (a) In Apartments;
- (b) In Single Family Dwellings;
- (c) With Electric Heating;
- (d) In Single Family Dwellings with Electric Heating; and
- (e) In Apartments with Electric Heating.

**70.0 Reference: Exhibit B-1, Section 5.2 Residential Inclining Block (RIB) Rate**

70.1 Please provide the most recent study showing the month-by-month load curve:

- (a) For residential customers as a whole for a complete 12-month period;
- (b) For each residential tariff class for a complete 12-month period;
- (c) For low-income residential customers for a complete 12-month period;
- (d) For low-use residential customers, who are also low-income; and
- (e) For low-use residential customers, whether or not such customers are low-income, using whatever definition of “low-use” BC Hydro has utilized.

**71.0 Reference: Exhibit B-1, Section 5.2 RIB Rate**

71.1 Please provide a detailed description of how BC Hydro identified its “low-income customers” in its consideration of the impacts of varying residential rate structures (see, e.g., page 5-23: “only 9 per cent of low income customers would be better off under a flat rate as compared to the RIB rate”).

**72.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

72.1 Please provide a copy of any study, memo, evaluation or analysis of any nature that discusses, assesses or otherwise considers the differences in the load curve for residential customers depending on the:

- (a) Monthly kWh consumption of the customer;
- (b) Annual kWh consumption of the customer; and
- (c) Income of the customer.

**73.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

73.1 In an active Excel spreadsheet:

- (a) By month for the most recent twelve months available, disaggregated by heating and non-heating customers, provide a usage distribution in blocks of 50 kWh of consumption with a reasonable top-end usage block determined by BC Hydro. For each usage block identified, provide: (1) the number of accounts in the block; (2) the total consumption in kWh in the block; (3) the average usage in the block; (4) the bill for the average consumption at existing standard residential rates; and (5) the bill for the average consumption at the standard residential rates as proposed by BC Hydro in this proceeding;
- (b) Provide the same information for low-income customers;
- (c) Provide the same information for customers with annual consumption 80% of median or below; and
- (d) Provide the same information for customers with annual consumption 130% of median or above.

**74.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

74.1 In an active Excel spreadsheet:

- (a) For each month for the most recent twelve months available, disaggregated by heating and non-heating residential accounts, please provide the average bill for residential accounts provided in sufficient detail (including all input variables) to permit replication; and
- (b) Provide the same bill information with the RRA increases applied to all 3 rate elements rather than BC Hydro’s existing rates”?

**75.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

75.1 Please identify the objectives BC Hydro seeks to accomplish or achieve with a Residential Inclining Block rate structure. Place these objectives in rank order if they are not of equal importance.

**76.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

76.1 Please identify what level of monthly usage (in kWh) is required to meet residential essential needs in a non-electric space heating household. Identify each end-use included in this essential needs and the monthly usage assumed for each such end-use.

**77.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

77.1 To the extent that average monthly residential usage exceeds the essential needs usage identified in the response to the Information Request immediately above, please identify what end uses are included in the average but not in the essential needs. Identify both the end-use and the usage (in kWh) associated with that end-use.

**78.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

78.1 Please indicate whether the level of usage to meet essential needs as identified in response to Information Requests above varies based on the income of the customer.

120.1.1 If yes, provide a detailed explanation of how, why, and to what extent such variation exists.

**79.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

79.1 Please identify and provide a copy of all instances where BC Hydro has used any of the following metrics in measuring the targeting of rate relief delivered through a universal (in contrast to a means-tested or income-targeted) RIB rate:

- (a) The beneficiary incidence as defined by the World Bank in assessing inclining block rate utility structures;
- (b) The benefit incidence as defined by the World Bank in assessing inclining block rate utility structures;
- (c) Omega ( $\Omega$ ) defined by the World Bank as the share of the subsidy benefits received by the poor divided by the proportion of the population in poverty; and
- (d) To the extent previously used by BC Hydro, indicate whether its use distinguished between heating and non-heating customers.

**80.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

80.1 To the extent that the BC Hydro analysis referenced and provided in response to the Information Request immediately above found an Omega less than 1.0, please provide all analyses by BC Hydro or others postulating, evaluating or otherwise discussing why an Omega of this value was present.

**81.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

81.1 Please confirm or deny whether higher residential usage is associated with higher contributions to peak demand on BC Hydro's system, if heating and non-heating accounts are considered separately. If denied, provide a detailed explanation of the basis for that denial.

**82.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

82.1 Please provide a copy of all written documents of any nature within BC Hydro's custody or control, if any, which empirically establish that peak kW demand may be less responsive to changes in price than kW of demand at other times.

**83.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

83.1 Please indicate BC Hydro's agreement or disagreement with each of the following statements. If there is disagreement, provide a detailed explanation of the basis for each disagreement.

- (a) Households with air conditioning tend to be more price responsive than those without;
- (b) Consumption in peak periods is more elastic than consumption in off-peak periods, in the context of time varying tariffs; and
- (c) Peak and off-peak consumption tend to be substitutes—a rise in the peak period price tends to lead to shifting of consumption away from the peak and into the off-peak period.

**84.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

84.1 For BC Hydro's preferred default residential rate (i.e. the existing RIB rate), please indicate the monthly break-even point of usage, where a customer is neither better off nor worse off compared to a flat rate structure.

**85.0 Reference: Exhibit B-1, Section 5.2**  
**RIB Rate**

85.1 For the recommended Residential Inclining Block rate in BC Hydro's application, provide in an active Excel spreadsheet, in usage increments of 100 kWh, using the maximum usage level in each increment and a

reasonable top-coded usage block, whether customers in that usage block are “winners” or “losers,” and the amount of gain or loss.

**86.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

86.1 Provide separate monthly usage distribution curves for low-income customers (as previously defined) and non-low-income customers (or residential customers irrespective of income if non-low-income is unavailable). Identify the usage amount at which the right tail of the low-income population intersects the left tail of the non-low-income population, if at all.

**87.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

87.1 For each usage distribution curve provided in response to the Information Request immediately above, identify the upper and lower bounds of usage at which BC Hydro determines the steeply sloping portion of the demand curve becomes the flat portion. If a single point (called a “kink”) can be identified, identify the point of usage representing that kink for each curve.

**88.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

88.1 In an active Excel spreadsheet, disaggregating by heating and non-heating customers, by monthly from January 2010 to present inclusive, provide the:

- (a) Residential usage at the average (mean);
- (b) Residential usage at the median;
- (c) Residential usage at 50% of the median;
- (d) Residential usage at 70% of the median;
- (e) Residential usage at 125% of the median; and
- (f) Residential usage at 150% of the median.

**89.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

89.1 Please provide all written documents of any nature in which BC Hydro assesses, evaluates or otherwise discusses the relative impacts of delivering low-income bill relief by a RIB rate with a smaller initial block and a deeper discount relative to a RIB rate with a broader initial block and a shallower discount.

**90.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

90.1 In an active Excel spreadsheet, please provide, disaggregated by heating and non-heating customers, a usage distribution by month for the most recent 12 months available, in the smallest bins used by BC Hydro to determine usage distributions, broken down by quintiles of residential

consumption. In this data, the “first quintile” would be the quintile with the lowest average annual consumption for the 12 months studied; the “fifth quintile” would be the quintile with the highest average annual consumption for the 12 months studied. BC Hydro can determine a reasonable top-coded usage amount. For each usage bin, provide:

- (a) The number of accounts in each bin;
- (b) The aggregate consumption in each bin; and
- (c) The average consumption in each bin.

**91.0 Reference: Exhibit B-1, Section 5.2, Figure 5.2  
RIB Rate**

**Preamble:** Figure 5.2 in the Application shows Average Residential Class Consumption by Month for F2011 to F2015.

- 91.1 Please provide separate graphs similar to Figure 5.2 for each of the following regions: Vancouver Island, Lower Mainland, Southern Interior, and the North.
- 91.2 Please provide any available data on average or median energy use on reserves per household, using the same format as Figure 5.2 to display the data.

**92.0 Reference: Exhibit B-1, Section 5.2  
RIB Rate**

- 92.1 How many BC Hydro customers currently use more than 2000, 2100, 2200, 2300 and 2400 KWH per month on average? Please provide the answer in the form of a chart/graph, broken up by month.

134.1.1 Please provide a separate chart/graph for each of the following geographical regions: Vancouver Island, Lower Mainland, Southern Interior, and the North.

**93.0 Reference: Exhibit B-1, Section 5.2, p. 5-29  
RIB Rate**

**Preamble:** BC Hydro states in the Application that it “advised Workshop 9a/9b participants of the outcome of the California Public Utilities Commission’s (CPUC) June 21, 2015 residential rate reform plan, which will see the current four step residential rates of the three large investor owned utilities - Pacific Gas & Electric, Southern California Edison and San Diego Gas & Electric - reduced to two steps.”

- 93.1 Please confirm the California utilities referenced above are moving to a two tier structure with a surcharge for high consumption.

**94.0 Reference: Exhibit B-1, page 5-48 and 2-46**

- 94.1 Do all current Residential E-Plus customers have smart meters with RDR capability?

- 94.2 If not, what is BC Hydro's proposed treatment from those who do not?
- 95.0 Reference: Exhibit B-1, page 5-51**
- 95.1 For purposes of the COSS set out in Appendix D were the Residential E-Plus heating loads included in the determination of the energy and demand allocators for the Residential class?
- 71.1.1 If yes, what would be the impact of excluding them?
- 96.0 Reference: Exhibit B-1, pages 5-54 to 5-56**
- 96.1 Under Option 3, is there any reason to maintain the Residential E-Plus rate as closed to new participants?
- 72.1.1 If yes, why?
- 96.2 With respect to notice of interruption (page 5-56), there is no reference to what is the shortest notice period that BC Hydro will provide. Does BC Hydro propose that there would be one and, if so, what would it be? Alternatively, could customers still be subject to interruption even if prior notice (as outlined at lines 26-27) has not been given?
- 97.0 Reference: Exhibit B-1, Section 5.4  
Low income rate**
- 97.1 If an income verification system is set up for low income Terms and Conditions of service, please confirm whether the same system could also be used for customers who are eligible for a lifeline rate?
- 98.0 Reference: Exhibit B-1, Section 5.4, p. 5-60  
Low income rate**
- 98.1 Does BC Hydro agree that the Manitoba Public Utilities Board found that affordability is a factor to consider in setting just and reasonable rates, as per the Public Utility Board's decision at p. 29?
- 99.0 Reference: Exhibit B-1, page 5-69 to 5-70**
- 99.1 Based on the paragraph starting at line 25 of page 5-69, is dwelling size a factor in driving higher than average energy use?
- 99.2 For dwellings with electric heat, is either dwelling type or size a factor in driving higher than average energy use? Please provide the analysis supporting the response.
- 100.0 Reference: Exhibit B-1, page 5-70 to 5-71**
- 100.1 With respect to page 5-71 (lines 14-21), what portion of Residential customers would see a bill decrease of greater than 10% if a flat energy rate were put in place as opposed to the current RIB rate?

100.2 With respect to page 5-71 (lines 14-21), what portion of low income Residential customers would see a bill decrease of greater than 10% if a flat energy rate were put in place as opposed to the current RIB rate?

**101.0 Reference: Exhibit B-1, page 5-71**

**Preamble:** Question 3 from the Minister's RIB Report Letter inquires as to "What evidence is available about factors that lead to high energy use and, therefore, bill impacts for customers without access to natural gas, including low income customers?"

101.1 At page 5-69 BC Hydro identifies what it considers as the factors that lead to higher than average electricity use. Are these same factors applicable for areas without natural gas service and for low income customers?

101.2 Are there other factors driving higher than average electricity use that are unique to either areas without natural gas and/or low income customers?

**102.0 Reference: Exhibit B-1, pages 5-72**

102.1 There does not appear to be a section addressing the portion of Question 5 regarding "what options there are for additional residential DSM program, including low income programs, within the current regulatory environment" (per lines 9-11). Is it BC Hydro's view that there are no options for additional DSM programs?

76.1.1 If yes, what is the basis for this conclusion?

76.1.2 If no, please provide a response.

**103.0 Reference: Exhibit B-1, page 5-74 to 5-78**

103.1 What percentage of low income (LICO and under) houses in BC Hydro's service area does 85,000 represent (per page 5-74)?

103.2 Given the low income eligibility changes outlined on page 5-76, how many houses meeting the 2015 RDA definition of low income (LICO and under) have received ESKs since the program was launched in 2008?

103.3 How many of the approved ECAP applications were for houses with electric heat and, of these, how many received a high efficiency gas furnace?

103.4 Given the low income eligibility changes outlined on page 5-76, how many houses meeting the 2015 RDA definition of low income (LICO and under) have been approved for the ECAP and, of these, how many had electric heat and how many received a high-efficiency gas furnace?

**104.0 Reference: Exhibit B-1, Section 5.6  
BC Hydro Power Smart Home Loan Pilot Program Application**

104.1 The BC Hydro Power Smart Home Loan Pilot Program was approved by the Commission on October 30, 2012 by Order G-162-12. Please advise

when it was discontinued. Since the program was only available to credit-worthy applicants, please confirm that it was not targeted to assist Low income customers. Has BC Hydro considered such an (interest free) program for its low income customers?

104.2 Did BC Hydro's evaluation of US jurisdictions identify any interest free programs for low income customers?

**105.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

105.1 Please provide a copy of all Demand Side Management ("DSM"):

- (a) Program planning documents prepared by or for BC Hydro since January 1, 2010 for any BC Hydro low income DSM programs; and
- (b) Program evaluations prepared by or for BC Hydro since January 1, 2010 for any BC Hydro low income DSM programs.

**106.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

106.1 Please provide all studies, reports, evaluations or other written documents of any nature within the custody or control of BC Hydro, prepared since January 2005 regarding the extent of the following DSM market conditions experienced by low income households in British Columbia:

- (a) High initial capital costs of energy efficiency investments;
- (b) Lack of access to capital for energy efficiency investments;
- (c) High implicit discount rates/payback periods for energy efficiency investments;
- (d) High proportion of low income renters;
- (e) Split incentives between landlord and tenants relative to energy efficiency investments; and
- (f) High mobility rate of low income renters.

**107.0 Reference: Exhibit B-1, Section 5.6.2**

107.1 Please provide the sections of BC Hydro's Conservation Potential Reviews, if any, that informed the two residential low income DSM program offerings.

107.2 What programs currently exist that may be able to assist low income BC Hydro ratepayers with paying their BC Hydro electricity bills?

**108.0 Reference: Exhibit B-1, Section 5.6.2  
Energy Savings Kits**

108.1 Please explain the methodology used in evaluating the savings achieved by ESKs given the fact that each kit contains a number of components, some of which the customer may not be able to install.

- 108.2 Please confirm that until recently BC Hydro's website contained a section with the heading "Are you a low income BC Hydro customer? We can help you save \$30 a year."
- 108.3 Please further confirm that by letter dated February 13, 2015 BC Hydro advised BCPIAC that "[T]he website headline 'We can help you save \$30 a year' refers to the average electricity savings from ESKs. It is based on the blended average annual savings of the two current types of kits (standard and apartment). The cost of electricity assumed is \$.0827/kWh based the residential exempt rate (Rate Schedule (RS) 1151 as of April 1, 2013)".
- 108.4 At p.5-75 of the Application, BC Hydro asserts that "The energy savings kits referred to above can help recipients save up to \$100/year on utility bills." Please explain how the savings more than tripled, and provide a working spreadsheet that identifies the energy saved by individual components of the ESK, and the value of that energy, for both the \$30 and the \$100 annual savings calculation.
- 108.5 Please provide the cost of both types of ESKs to BC Hydro, together with the cost of third party delivery.
- 108.6 Please provide the annual cost of the ESK program for each year since 2008, by cost type, together with BC Hydro's estimate of energy saved.
- 108.7 Please provide BC Hydro's forecast program expenditures on ESKs for future years, together with its estimate of energy savings.
- 109.0 Reference: Exhibit B-1, Section 5.6.2  
Energy Conservation Assistance Program (ECAP)**
- 109.1 Please confirm that Carillion Canada Inc. is the program contractor for ECAP. Are there any other contractors involved in the delivery of ECAP?
- 109.2 When was Carillion appointed, and what document, if any, did BC Hydro publish (such as a RFP) to elicit responses from interested parties? Please provide a copy of any such document.
- 109.3 How many assessments has Carillion performed since the inception of the program? Please provide an analysis by year and service area.
- 109.4 The ECAP application form states: "BC Hydro and FortisBC are not obligated to provide program support to any applicants including those who meet all program eligibility criteria. It is within BC Hydro's and FortisBC's sole discretion to accept or reject any applicant who meets all program eligibility criteria". Please provide all circumstances under which BC Hydro might reject an otherwise qualified application, and provide the numbers of such applications rejected by year, by service area and reason, for all years since ECAP started.
- 109.5 Please provide details of how the savings referred to on p.5-75 of the Application of \$150 per year for basic measures and a fridge, and \$300 per year for insulation upgrades were calculated. Please also clarify

whether the \$300 referred to at p. 5-75 (line 4) is the total annual saving from all three sources or is simply referring to insulation savings.

- 109.6 Please provide the annual cost of the ECAP program for each year since 2008, by i) direct cost type (home evaluation, energy saving products, refrigerators and insulation); and ii) indirect cost type (administration, marketing, etc.). Please also provide BC Hydro's estimate of energy saved by program component.
- 109.7 Please provide BC Hydro's forecast program expenditures on the ECAP program for future years. Please also provide BC Hydro's estimate of energy savings by program component.
- 109.8 BC Hydro states that it conducted an evaluation of its ECAP program in 2011, a summary of which is included in the F2012 Demand Side Management Milestone Evaluation Summary Report to the BCUC. At line 22 of p. 13 of this report, BC Hydro refers to a study that analyzed the energy savings impact of ECAP and summarized the results. In order to evaluate the program, please provide the actual study, particularly sections that discuss the electricity use metrics of households in their pre and post experimental design with participant and non-participant groups.
- 109.9 Please confirm whether BC Hydro has conducted a new evaluation of ECAP, given that this evaluation is 4 years old and that the program has gone through significant changes over those 4 years.
- 109.10 How many ECAPs is BC Hydro capable of completing per year?
- 109.11 Does BC Hydro have a target number for ECAPs to complete per year? If so, what are those targets?
- 109.12 If BC Hydro has targets, are BC Hydro and its contractors able to process more than the target number of ECAP applications per year?
- 109.13 How many ECAP applications were turned down in 2015, 2014, and 2013, and for what reasons?
- 109.14 Is the primary goal of ECAP to provide BC Hydro with energy savings, or is the primary goal to significantly reduce bills for low income customers who are having difficulty paying their electricity bills?
- 109.15 Does BC Hydro do a meter reading before and after installation of ECAP measures in order to determine whether ECAP has resulted in energy and bill savings for residential customers?
- 109.16 How does BC Hydro verify income information without violating privacy laws when determining low income customers' eligibility for ECAP?
- 109.17 When BC Hydro collects customers' income data for determining eligibility for ECAP, does BC Hydro keep customer income data separate from the main customer service system?
- 110.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 110.1 For each month for the most recent twelve months available, disaggregated by heating and non-heating residential accounts, please provide:
- (a) The average bill for residential accounts at existing rates provided in sufficient detail (including all input variables) to permit replication; and
  - (b) The same bill information using BC Hydro's rates as of April 1, 2016.
- 111.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**
- 111.1 Please provide all empirical studies within BC Hydro's custody or control showing the relationship between income and electricity consumption, using data from:
- (a) BC Hydro's customers;
  - (b) A Canadian electric utility, whether or not in British Columbia; and
  - (c) Any electric utility whether or not Canadian.
- 112.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**
- 112.1 Please provide each customer demographic survey other than the Residential End Use Survey (REUS) that has been prepared for residential customers since January 2010. If no survey other than the REUS has been prepared since January 2010, please provide the most recent survey other than the REUS.
- 113.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**
- 113.1 For BC Hydro's existing residential DSM programs, please provide:
- (a) An explanation of how BC Hydro screens DSM projects;
  - (b) An identification of all potential DSM programs screened for its present DSM Plan;
  - (c) Any evaluation of the cost-effectiveness of its current DSM programs;
  - (d) A specification of the avoided cost estimates BC Hydro is using to screen DSM projects. Document the derivation of the avoided costs, including all workpapers and spreadsheets;
  - (e) The penetration rate estimated for each program together with the basis of that estimate;
  - (f) An estimate of the utility costs for each of BC Hydro's DSM programs;
  - (g) The basis of BC Hydro's forecast of energy and peak savings from each of its DSM programs;
  - (h) BC Hydro's total budget for DSM projects;
  - (i) An explanation of how BC Hydro determined how much to spend on DSM and what amount of savings to strive for;

- (j) An identification of all DSM programs in which BC Hydro has been forced to shut off applications, or wait-list potential participants, due to budget constraints;
- (k) An identification of all DSM programs in which BC Hydro could reach additional customers or fund additional cost-effective measures, if the program budgets were increased; and
- (l) An identification and explanation of whether the DSM investment per customer is limited in any program. If so, describe those limits and explain why BC Hydro is not willing to make all cost-effective investments in DSM.

**114.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

114.1 For the LICO x 130% customer base served by BC Hydro of customers directly paying their own energy bills, provide a distribution of the estimated number of such customers by the following ranges of LICO:

- (a) 0 – 25% of LICO;
- (b) 26 – 50% of LICO;
- (c) 51 – 75% of LICO;
- (d) 76 – 100% of LICO; and
- (e) 101 – 130% of LICO.

**115.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

115.1 For each band of LICO in the immediately preceding response, provide:

- (a) The average income; and
- (b) The median income.

**116.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

116.1 Please provide by year for each year from 2012 to 2015, inclusive, disaggregated by heating and non-heating customers:

- (a) The number of low income customers whose utility bills are being paid directly by a government agency to BC Hydro that would fall within the 30% of highest residential users; and
- (b) The number of low income customers whose utility bills are being paid directly by a government agency to BC Hydro that would fall within the 50% of highest residential users.

**117.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

117.1 Please provide all documents within BC Hydro's custody or control which, for the United States or Canada, identifies and/or otherwise discusses the

penetration of market-based energy efficiency measures in low income households.

**118.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

118.1 Please provide an outline of any methodology or process that BC Hydro would find acceptable to dollarize and quantify the utility-related non-energy benefits (e.g., reduced bad debt, reduced arrearages, etc.) resulting from residential usage reduction generally and from low income usage reduction in particular.

**119.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

119.1 For so-called “de facto electric heating” (defined as the situation in which a residential customer relies on portable electric heating as a primary source of heating even though the residence is configured to be heated primarily with gas service), please describe:

- (a) Any DSM projects that have specifically addressed such de facto electric heating; and
- (b) Any impediments to addressing such de facto electric heating within the context of BC Hydro’s DSM programs.

**120.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

120.1 Please identify and provide a description of, for the years January 2010 to 2015 inclusive, all affirmative efforts by BC Hydro (outside the low income programs described in Section 5.6.2 of the Application):

- (a) To target DSM marketing to low income customers (and the results therefrom);
- (b) To develop information regarding the low income DSM market (and the results therefrom);
- (c) To identify low income market niches to serve with DSM if a broad-based low income program is not offered (and the results therefrom);
- (d) To create piggyback programs to reach low income customers with DSM (and the results therefrom); and
- (e) To develop partnerships with institutions serving low income customers to have those institutions deliver DSM (and the results therefrom).

**121.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

121.1 Provide any analysis that BC Hydro has undertaken of its residential customer population since January 2005 in which it assesses the propositions that:

- (a) The greater the energy consumption is in the pre-treatment period, the greater the potential for energy savings; and
- (b) The greater the energy bill arrearage is in the pre-treatment period, the greater the reductions in energy consumption realized by DSM investments.

**122.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

122.1 Provide all analyses that BC Hydro has undertaken since January 2005 of its residential population assessing the extent to which, if at all:

- (a) Households with energy bill arrearages in the pre-treatment period reduce their arrearages following DSM services;
- (b) The number of complete payments changes following DSM services; and
- (c) The payment coverage ratio (i.e., payments as a percentage of billed revenue) changes following DSM services.

**123.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

123.1 Please identify and provide any documents within BC Hydro's custody or control finding or otherwise discussing whether, and if so how and to what extent, utility-funded DSM programs tend to exclude low income customers without a low income set-aside.

**124.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

124.1 Please identify all market barriers that impede or prevent a customer from installing cost-effective DSM measures in the absence of external assistance if the customer is:

- (a) A residential customer irrespective of income; and
- (b) A low income residential customer.

**125.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

125.1 Please identify and provide any document within BC Hydro's custody or control discussing implicit discount rates (sometimes known as hurdle rates or internal rates of return) for residential DSM measures by income.

**126.0 Reference: Exhibit B-1, Section 5.6.2**  
**Low income energy efficiency**

126.1 Please provide all documents within BC Hydro's custody or control discussing the extent to which, if at all, DSM measures delivered to low income customers result in the following associated with the customers:

- (a) Reduced arrearages;

- (b) Reduced bad debt expense;
- (c) Reduced credit and collection activity;
- (d) Improved timeliness of payments; and
- (e) Improved completeness of payments.

**127.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

127.1 Confirm or deny each of the following statements. If denied, provide a detailed explanation of the basis for the denial. All other things being equal:

- (a) A reduced level of residential arrearages reduces BC Hydro's revenue requirement;
- (b) A reduced level of residential bad debt reduces BC Hydro's revenue requirement;
- (c) A reduced level of credit and collection activities reduces BC Hydro's revenue requirement;
- (d) Improved timeliness of residential payments reduces BC Hydro's revenue requirement; and
- (e) Improved completeness of residential payments reduces BC Hydro's revenue requirement.

**128.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

128.1 Please explain each way in which, if at all, BC Hydro uses the following factors to target the delivery of residential DSM investments:

- (a) Usage of the customer as a percentage of the residential mean or median usage;
- (b) Level of arrearages of the customer;
- (c) Length of residence of the customer at the housing unit to be treated; and
- (d) Credit and collection or payment history of the customer.

**129.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

129.1 Please describe all ways in which there is an integration of BC Hydro's utility-funded residential DSM programs with each of the following:

- (a) Requests for deferred payment plans;
- (b) Disconnections for nonpayment;
- (c) Requests for crisis assistance; and
- (d) Receipt of direct bill payment assistance from the Government.

**130.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 130.1 Please identify and provide all documents prepared since January 2010 which identify or otherwise discuss:
- (a) The existing institutional capacity to deliver low income DSM in British Columbia; and
  - (b) The potential institutional capacity to deliver low income DSM in British Columbia.

**131.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 131.1 Please identify and provide a copy of all documents prepared by or for BC Hydro since January 2010 identifying and/or discussing:
- (a) The technical potential for DSM savings for low income residential customers in BC Hydro's service territory;
  - (b) The economic potential for DSM savings for low income residential customers in BC Hydro's service territory;
  - (c) The percentage of technical potential for low income residential customers in BC Hydro's service territory yet to be realized; and
  - (d) The percentage of economic potential for low income residential customers in BC Hydro's service territory yet to be realized.

**132.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 132.1 Please identify and provide a copy of all documents prepared by or for BC Hydro since January 2010 identifying and/or discussing:
- (a) The technical potential for DSM savings for residential customers irrespective of income in BC Hydro's service territory;
  - (b) The economic potential for DSM savings for residential customers irrespective of income in BC Hydro's service territory;
  - (c) The percentage of technical potential for residential customers irrespective of income in BC Hydro's service territory yet to be realized; and
  - (d) The percentage of economic potential for residential customers irrespective of income in BC Hydro's service territory yet to be realized.

**133.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 133.1 By residential DSM measure for each year from January 2010 to present, please provide the average installed cost. Separately provide, disaggregated by heating and non-heating customers where available, the per-household total average treatment cost of a residential unit by year during the same time period.

**134.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**

- 134.1 Please identify and provide a copy of all documents within BC Hydro's custody or control describing a low income DSM electric program in the United States or Canada that is a:
- (a) Parallel program, defined to be a program in which a government agency runs two programs, one funded and designed by a government agency and a parallel one funded and designed by an electric utility.
  - (b) Supplemental program, defined to be a program in which the program relies on utility funding to support a government agency's ongoing program, with no changes in the program's design or operation; and
  - (c) Coupled program, in which a government agency and electric utility fund, design and implement the energy efficiency efforts.
  - (d) For each program identified in response to the question immediately above, please provide a brief description of all factors, if any, that would make such a program infeasible or uneconomic for BC Hydro.

**135.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency – First Nations**

- 135.1 Provide a breakdown of residential electricity consumption on First Nations reserve and treaty lands in BC by month, broken down by:
- (a) Income, including LICO, LICO plus 30% and income above LICO plus 30%;
  - (b) Dwelling type;
  - (c) Heating type; and
  - (d) Household size.
- 135.2 Provide the number of residential customer accounts on First Nations reserve and treaty lands in BC, broken down by income, including LICO, LICO plus 30% and income above LICO plus 30%.
- 135.3 Describe the eligibility criteria and assessment process for ECAP for First Nations and whether the eligibility criteria and assessment process are different than applications from customers who are not First Nations.
- 135.4 How does BC Hydro address privacy issues related to income verification and eligibility assessment for ECAP and ESKs, for First Nations and non-First Nations applicants, if the process is different?
- 135.5 Is BC Hydro developing a First Nations Power Smart program?
- 110.6.1 If so, please describe the program and when BC Hydro plans to implement the program.
- 135.6 Does BC Hydro leverage dollars with Indigenous and Northern Affairs Canada to install ECAP where mould or other health and safety issues prevent installation of weatherization DSM measures on First Nations reserve and treaty lands?

- 135.7 How many households, annually, receive Advanced ECAP and how many receive Basic ECAP for the entire program?
- 135.8 How many First Nations households, annually, receive Advanced ECAP and how many receive Basic ECAP?
- 135.9 What fraction of households that receive ECAP do not receive any air sealing measures program wide?
- 135.10 What fraction of First Nations households that receive ECAP do not receive any air sealing measures?
- 136.0 Reference: Exhibit B-1, Section 5.6.2  
Low income energy efficiency**
- 136.1 Are there any income support programs other than those listed in the definition of “low income household” in the Demand Side Measures Regulation at: [http://www.bclaws.ca/civix/document/id/complete/statreg/326\\_2008](http://www.bclaws.ca/civix/document/id/complete/statreg/326_2008) that BC Hydro currently accepts as proof of income for the purpose of qualifying for ECAP and ESKs?
- 136.2 If a BC Hydro customer receives social assistance through Indigenous Affairs and Northern Development Canada, would proof of this income be sufficient for such a customer to apply for ECAP and ESKs?

## **CHAPTER 6 – GENERAL SERVICE RATE DESIGN**

- 137.0 Reference: Exhibit B-1, pages 6-8 to 6-12**
- 137.1 Please clarify what is meant by customer-related costs (page 6-8) and indicate what the dollar value for customer-related costs is for the SGS class based on the F2016 COSS, providing the necessary cross-references to the F2016 COSS – per Appendix E.
- 137.2 Based on the F2016 SGS billing determinants (i.e., customers and energy) please provide the calculations demonstrating that the current F2016 basic charge recovers 35% of customer-related costs.
- 137.3 Does BC Hydro anticipate/foresee any issues arising from the fact the proposed basic charge for SGS (32 cents/day in F2017) will exceed the proposed basic charge for MGS customers (23.47 cents/day in F2017) – such that smaller customers will be seeing a higher basic charge?
- 138.0 Reference: Exhibit B-1, Appendix H-1A, page 55**
- 138.1 Given that increasing the basic charge’s recovery of customer related costs from 35% to 45% would require an increase of 28.6% (45/35) why is the escalation factor 1.36?
- 138.2 Please indicate how the 1.36 escalation factor for the SGS basic charge was determined.
- 139.0 Reference: Exhibit B-1, Appendix H-1A, page 55**

139.1 Please provide a schedule similar to Table H-1A-43 (rows A-K) but for F2016 based on the approved rates. Please reconcile the revenues that result with those used in the COSS (Schedule 4.0) for the SGS class.

**140.0 Reference: Exhibit B-1, Appendix H-1A, pages 53-59**

**Preamble:** For purposes of modelling BC Hydro has calculated the “proposed SGS rates” for F2017-F2018 so as to be revenue neutral to revenue assuming the status quo rates for each year (page 53). BC Hydro proposes to implement the SGS changes April 1, 2017.

140.1 How will the increase in the basic charge for F2018 (over the F2017 basic charge) be determined, assuming the F2018 RRA increase is 3.5%?

140.2 How will the F2018 energy charge be determined? Will it be determined so as to maintain revenue neutrality as if the status quo rate design had been maintained for F2018?

140.3 How will revenue neutrality be defined for F2019? Will it be based on: a) revenues for F2019 assuming the status quo rate design had been maintained through to F2019 and applying the RRA increases or b) determining the F2019 revenues using the SGS rates approved for F2018 and escalating the results by the RRA for F2019?

**141.0 Reference: Exhibit B-1, page 6-10**

141.1 Assuming BC Hydro’s rate increases for F2017 through F2019 match the rate caps set out on page 1-2, please provide a schedule that compares the SGS energy rates for F2018 and F2019 with the LRMC range for each of these years as set out in Table 2-6.

**142.0 Reference: Exhibit B-1, page 6-14**

142.1 Please explain why, for the lowest and highest percentiles, the difference between the last two columns is not 4% - the F2017 RRA increase.

**143.0 Reference: Exhibit B-1, page 6-32**

143.1 Assuming BC Hydro’s rate increases for F2017 through F2019 match the rate caps set out on page 1-2, please provide a schedule that compares the MGS energy rates for F2018 and F2019 with the LRMC range for each of these years as set out in Table 2-6.

**144.0 Reference: Exhibit B-1, pages 6-30 and 6-34**

144.1 Please clarify what is meant by demand-related costs and indicate what the dollar value is for the MGS class based on the F2016 COSS, providing the necessary cross-references to the F2016 COSS – per Appendix E.

144.2 Based on the F2016 MGS billing determinants (i.e., customers, demand and energy) please provide the calculations demonstrating that the current F2016 demand charge recovers 15% of demand-related costs.

144.3 What percentage of the customer-related costs allocated to MGS are recovered through the basic charge? In responding, please indicate what the dollar value for customer-related costs is for the MGS, providing the necessary cross-references to the F2016 COSS – per Appendix E.

**145.0 Reference: Exhibit B-1, pages 6-36 and 6-68**

145.1 Please explain the difference between Figures 6-6 and 6-14. While the titles suggest both are showing the impacts of transitioning to BC Hydro's preferred MGS rate design in one year (6-6 net of the RRA and 6-14 including RRA), the differences between the values shown in the tables are more than the RRA increase for F2017.

**146.0 Reference: Exhibit B-1, Appendix H-1A, page 37**

146.1 Please provide a schedule similar to Table H-1A-31 (rows A-AF) but for F2016 based on the approved rates. Please reconcile the revenues that result with those used in the COSS (Schedule 4.0) for the MGS class.

**147.0 Reference: Exhibit B-1, Appendix H-1A, page 43**

147.1 Given that increasing the MGS demand charge's recovery of demand related costs from 15% to 35% would require an increase of 133% (35/15) why is the escalation factor 2.22 and not 2.33?

147.2 Please indicate how the 2.22 escalation factor for the MGS demand charge cost recovery was determined.

**148.0 Reference: Exhibit B-1, Appendix H-1A, pages 43-48**

**Preamble:** For purposes of modelling BC Hydro has calculated the "proposed rates" for F2017-F2018 so as to be revenue neutral to revenues assuming the status quo MGS rates for each year (page 43). BC Hydro proposes to implement the MGS changes April 1, 2017.

148.1 How will the flat demand charge for F2018 be determined, assuming the F2018 RRA increase is 3.5%?

148.2 How will the F2018 energy charge be determined? Will it be determined so as to maintain revenue neutrality as if the status quo rate design had been maintained for F2018?

148.3 How will revenue neutrality be defined for F2019? Will it be based on: a) revenues for F2019 assuming the status quo rate design had been maintained through to F2018 and applying the RRA increases or b) determining the F2019 revenues using the MGS rates approved for F2018 and escalating the results by the RRA for F2019?

**149.0 Reference: Exhibit B-1, pages 6-49 to 6-50 and page 6-59**

149.1 Assuming BC Hydro's rate increases for F2017 through F2019 match the rate caps set out on page 1-2, please provide a schedule that compares the LGS energy rates for F2017 to F2019 under BC Hydro's preferred

option (per page 6-59) with the LRMC range for each of these years as set out in Table 2-6.

149.2 At page 6-49 (lines 18-19) BC Hydro states that the improved changed (to 65% demand cost recovery from demand charges) “improves fairness and does so without a loss of efficiency”. Please explain why there is no loss in efficiency when moving from 50% to 65% demand cost recovery via the demand charge decreases the energy rate (per Table 6-18) and moves it further away from the LRMC range.

**150.0 Reference: Exhibit B-1, pages 6-49 and 6-58**

150.1 Based on the F2016 LGS billing determinants (i.e., customers, demand and energy) please provide the calculations demonstrating that the current F2016 demand charges recover 50% of demand-related costs. In doing so please indicate (with reference to the F2016 COSS – Appendix E) what the demand-related costs allocated to LGS are.

150.2 What percentage of the customer-related costs allocated to LGS are recovered through the basic charge? In responding, please indicate what the dollar value for customer-related costs is for the LGS class, providing the necessary cross-references to the F2016 COSS – per Appendix E.

**151.0 Reference: Exhibit B-1, page 6-58**

151.1 Page 6-58 indicates that for RS 1823 customers (i.e., Transmission Service customers), the demand charge recovers 65% of demand costs. How are demand cost for RS 1823 customers defined for purposes of this calculation? In particular, given there is no basic charge for RS1823 customers, does the definition include the customer-related costs allocated to Transmission Service customers?

151.2 Based on the F2016 billing determinants (i.e., customers, demand and energy) for Transmission service customers, please provide the calculations demonstrating that the current F2016 demand charge recovers 65% of demand-related costs. In doing so please indicate (with reference to the F2016 COSS – Appendix E) what the demand-related costs allocated to Transmission service customers are.

151.3 If customer-related costs are not included in the definition of “demand costs” used for purposes of calculating the 65%, please recalculate (similar to the response to part (2)) the percentage with customer-related costs included.

**152.0 Reference: Exhibit B-1, Appendix H-1A, pages 19-22**

152.1 Please provide a schedule similar to Table H-1A-19 (rows A-AE) but for F2016 based on the approved F2016 rates. Please reconcile the revenues that result with those used in the COSS (Schedule 4.0) for the LGS class.

**153.0 Reference: Exhibit B-1, Appendix H-1A, page 26**

153.1 Please indicate how the 1.3 escalation factor for the LGS demand charge cost recovery was determined.

**154.0 Reference: Exhibit B-1, Appendix H-1A, pages 26-30**

**Preamble:** For purposes of modelling BC Hydro has calculated the “proposed rates” for F2017-F2019 so as to be revenue neutral to revenues assuming the status quo LGS rates for each year (page 26). BC Hydro proposes to implement the LGS changes April 1, 2017.

154.1 How will the flat demand charge for F2018 be determined, assuming the F2018 RRA increase is 3.5%?

154.2 How will the F2018 energy charge be determined? Will it be determined so as to maintain revenue neutrality as if the status quo rate design had been maintained for F2018?

154.3 How will revenue neutrality be defined for F2019? Will it be based on: a) revenues for F2019 assuming the status quo rate design had been maintained through to F2018 and applying the RRA increases or b) determining the F2019 revenues using the LGS rates approved for F2018 and escalating the results by the RRA for F2019?

**155.0 Reference: Exhibit B-1, pages 6-65, 6-67 and 6-69**

155.1 Please confirm that, based on Figure 6-12, the highest LGS bill impact shown (excluding RRA) is 4%. If not, what is the value?

155.2 Based on actual customer billing profiles: a) what is the maximum impact an LGS customer would see (including the F2018 RRA of 3.5%) and b) how many LGS customers will see a bill impact in excess of 10% (including the F2018 RRA of 3.5%)?

155.3 Does BC Hydro agree that one of the factors affecting customer acceptance is bill impacts?

155.4 Please explain the difference between Figures 6-12 and 6-16. While the titles suggest both are showing the impacts of transitioning to BC Hydro’s preferred LGS rate design in one year (6-12 net of the RRA and 6-16 including RRA), the differences between the values shown in the tables are more than the RRA increase for F2017.

**156.0 Reference: Exhibit B-1, pages 6-70 to 6-71**

156.1 Given the currently existing “new” LGS and MGS customers and assuming an addition of new customers for November 15, 2015 through March 31, 2016 matching that experienced in the period November 15, 2014 through March 31, 2015, what would be the impact on BC Hydro’s F2016 net income of the requested change in the new account rule for LGS and MGS customers effective January 1, 2016?

**157.0 Reference: Exhibit B-1 page 6-74**

- 157.1 Does BC Hydro plan/construct either transmission or distribution facilities to provide service under RS 1253?
  - 158.1.1 If yes, who pays for these facilities?
  - 158.1.2 If no, is RS 1253 service denied when there are insufficient existing transmission and/or distribution facilities to deliver the requested service?
- 157.2 How are RS1253 loads and revenues treated in the COSS?

## **CHAPTER 7 – TRANSMISSION SERVICE RATE DESIGN**

### **158.0 Reference: Exhibit B-1, page 7-7**

- 158.1 Does the BCUC have the jurisdiction to determine what the appropriate LRMC value is for purposes of setting the Tier 2 rate?
- 158.2 Does the BCUC have the jurisdiction to alter the percentage of demand-related costs that are recovered through the demand charge?

### **159.0 Reference: Exhibit B-1, pages 7-8 to 7-9**

- 159.1 The Application states that a choice between revenue neutrality definitions must be made for F2017 but is not necessary for F2018 or F2019. Will the choice of revenue neutrality definition for F2017 affect the level of revenue that will be recovered from Transmission Service customers in F2017 – for a given level of RRA increase?
  - 160.1.1 If not, please explain why and demonstrate with supporting calculations.
- 159.2 If yes, does this mean that the definition of revenue neutrality used for Transmission Service customers could affect the level of the overall RRA increase required in F2017 (assuming the level of RRA increase is established in order to provide a certain level of revenue requirement in F2017)?
  - 160.2.1 If not, please explain why and demonstrate with supporting calculations.
- 159.3 The Application states that a choice between revenue neutrality definitions must be made for F2017 but is not necessary for F2018 or F2019. Will the choice of revenue neutrality definitions for F2017 affect the level of revenue to be that will be recovered from Transmission Service customers in F2018 and F2019 – for a given level of RRA increase?
  - 160.3.1 If not, please explain why and demonstrate with supporting calculations.
- 159.4 If yes, does this mean that the definition of revenue neutrality used for Transmission Service customers in F2017 could affect the level of the overall RRA increase required in each of F2018 and F2019 (assuming the

RRA increase is established in order to provide certain levels of revenue requirements in F2018 and F2019)?

- 160.4.1 If not, please explain why and demonstrate with supporting calculations.
- 159.5 Please confirm that the conclusion (page 7-9, lines 2-5) that the “RRA increases thereafter will result in RS 1823 pricing that in F2019 and F2019 satisfies all the requirements of Direction No. 7” is based on the assumption that the RRA increases will be equal to or exceed inflation.
- 160.0 Reference: Exhibit B-1, pages 7-9 to 7-10; pages 7-12 to 7-13 and Appendix H-1A**
- 160.1 Please provide the forecast Transmission Service billing quantities (e.g. demand, Tier 1 energy, Tier 2 energy) for F2016 as used in the COSS.
- 160.2 Please provide a schedule setting out the calculation of the F2016 revenue for the transmission service class as presented in Appendix E, COSS Tab 4.0 (\$889.32 M).
- 160.3 Please provide the derivation of the F2017, F2018 and F2019 revenues at F2016 Transmission Service rates and what the resulting revenue targets would be for F2017-F2020 using the RRA increases per Appendix H-1A (page 2).
- 160.4 Please provide the derivation of the F2017 revenues to be recovered from Transmission Service customers using the bill neutrality definition of revenue neutrality and an F2017 RRA increase of 4% under each of the three Options.
- 160.5 Please provide (using schedules similar to those employed for the MGS and LGS classes in Appendix H-1A), the derivation of the F2017-F2020 rates presented for each of the Options in Table 7-3.
- 160.6 Please provide the derivation of the F2017 revenues to be recovered from Transmission Service customers using the forecast revenue neutral definition of revenue neutrality and an F2017 RRA increase of 4%.
- 160.7 Please provide a schedule similar to Table 7-3 that sets out the Transmission service rates and resulting revenues for each of the options for F2017-F2020 assuming a forecast revenue neutral definition of revenue neutrality is used for F2017.
- 161.7.1 As part of the response, please provide (using schedules similar to those employed for the MGS and LGS classes in Appendix H-1A), the derivation of the F2017-F2020 rates presented for each of the Options using the forecast revenue neutral definition of revenue neutrality.
- 161.0 Reference: Exhibit B-1, page 7-13**

161.1 Please provide the calculations supporting the impacts reported at lines 15-19, showing the calculation of the revenues using the different approaches and the resulting differences as reported.

**162.0 Reference: Exhibit B-1, page 7-14**

162.1 Given that the use of the bill neutrality definition of revenue neutrality for the Transmission Service alters the F2017 revenues, couldn't this approach be viewed as implicitly rebalancing the revenue allocation between the customer classes?

163.1.1 If not, why not?

**163.0 Reference: Exhibit B-1, page 7-21**

163.1 Why is the difference in Mid-C monthly prices used to shape the Tier 2 rate for each season when the Tier 2 rates itself is based on LRMC and not short-term market prices?

**164.0 Reference: Exhibit B-1, pages 7-22 to 7-23**

164.1 Is BC Hydro proposing any restrictions as to how frequently it can alter the RS 1852 definition of HLH or how much notice customers will be given of a planned change?

**165.0 Reference: Exhibit B-1, pages 7-25 to 7-26**

165.1 Please explain more fully why an RTP option would result in non-firm service for incremental demand above the CBL.

**166.0 Reference: Exhibit B-1, pages 7-27 to 7-29**

166.1 Given the potential variation in spring water flows, what is the likelihood that there will be spills in F2017-F2020, assuming no freshet rate is offered?

166.2 With respect to Figure 7-2, given the export capability of BC Hydro's current interties, is the system physically able to "export" the surplus shown as it occurs or would there still be "surplus"?

166.3 With respect to Figure 7-2, based on anticipated reservoir levels at the start of F2017, would BC Hydro be able to "store" the surplus identified in part (2) and, if not, what would be the anticipated amount spilled?

166.4 If practical please re-do Figure 7-2 assuming water flows at a P90 level for F2017 (i.e., water flows would only be higher 10% of the time) and provide responses to parts (2) and (3) assuming these conditions.

**167.0 Reference: Exhibit B-1, pages 7-29 to 7-32**

**Preamble:** At page 7-30 the Application states:

"At Workshop 10, BC Hydro pointed out that average August prices over the 2010 to 2014 period are noticeably higher than

May to July prices and that differentials between HLH and LLH periods have generally averaged about \$15/MWh during the freshet compared to about \$5/MWh during other times of the year. This price spread indicates there may be greater incentive for customers to shift load from HLH to LLH during the freshet period relative to other times of the year (provided they have the ability to do so).”

- 167.1 Which “customers” is BC Hydro referring to given that the current RS 1823 provides no incentive from customers to shift from HLH to LLH?
- 167.2 Is Figure 7-4 calculated based solely on Mid-C prices or were the prices adjusted to incorporate the wheeling fee and price floor as proposed at page 7-37.
  - 168.2.1 If the wheeling fee and price floor were not used in the determination of Figure 7-4, please provide a revised figure after these two elements have also been taken into account.

**168.0 Reference: Exhibit B-1, pages 7-32 to 7-34**

- 168.1 Please describe what BC Hydro’s “fairness concerns” are regarding offering (indirectly) residential customers of UBC, SFU and New Westminster market priced energy (per page 7-33).
- 168.2 With respect to billing, will there be any interest accumulated on the bill in recognition of the fact that RS 1892 usage in May through July will billed retroactively in August?

**169.0 Reference: Exhibit B-1, page 7-35**

- 169.1 Is it BC Hydro’s expectation that the maximum kW purchased under RS 1823 and RS 1892 will be less than the customer’s (existing) contract demand?
  - 170.1.1 If it does exceed the contract demand for any of the months May through July, what (if any) additional charges will apply?
- 169.2 Will a customer be permitted to temporarily increase its contract demand for the duration of the RS 1892 pilot?
- 169.3 If the Net to Gross ratio is less than 100%, will there be any additional demand charges for load taken in excess of the Reference Demand?
  - 170.3.1 If not, why not?
  - 170.3.2 If yes, how will they be determined?

**170.0 Reference: Exhibit B-1, page 7-38**

- 170.1 Has BC Hydro attempted to quantify any of the risks noted a lines 8-21?
  - 171.1.1 If yes, what are the potential dollars consequences and the likelihood of them occurring?

- 170.2 The possibility that customers will shift load from non-freshet months of the year into the freshet months was not identified as a risk, even if low. Why not?
- 170.3 The possibility of customers shifting load from one plant another was not identified as a risk? Does BC Hydro consider this to be a risk?
- 171.3.1 If no, why not?
- 109.3 How was the \$3/MWh value for the proxy wheeling fee established?
- 171.0 Reference: Exhibit B-1, page 7-42**
- 171.1 Please clarify what is meant by “Energy is provided on an ‘as available’ basis at Mid-C market prices”.
- 171.2 The text at lines 7-8 suggests that BC Hydro views shifting RS 1823 load in non-freshet months to increase RS 1892 load during the freshet months is a valid use of the freshet rate. Please confirm whether or not this is the case.
- 172.2.1 If yes, please fully explain why and demonstrate that such shifting will be of benefit to BC Hydro and non-participating customers.

**172.0 Reference: Exhibit B-1, page 7-44**

- 172.1 Can BC Hydro terminate the supply of RS 1853 if it does not have sufficient generation or transmission capacity or is the special condition under the tariff limited to generation capacity?
- 172.2 The RS 1853 tariff provisions state that: “Prior to taking Electricity under this Schedule, the Customer may be required to obtain approval from BC Hydro. BC Hydro will advise the Customer of the need to obtain approval prior to the taking of energy under this Schedule” (emphasis added).
- 173.2.1 Under what circumstances would prior BC Hydro approval not be required?
- 173.2.2 If prior approval is not required, is the customer required to advise BC Hydro (after the fact) that it is taking service under the rate and, if so, how soon after starting to take service must notice be given?

**173.0 Reference: Exhibit B-1, page 45**

- 173.1 Can BC Hydro terminate the supply of RS 1880 if it does not have sufficient generation or transmission capacity or is the special condition under the tariff limited to generation capacity?

**CHAPTER 8 – ELECTRIC TARIFF TERMS AND CONDITIONS**

- 174.0 Reference: Exhibit B-1, pages 8-6 to 8-7 and Appendix G1-B, pages 1 to 6**

- 174.1 For each of the Minimum Connection charges please provide a schedule that contrasts the following with the values used in the 2007 RDA for setting the comparable charge: a) Labour, including hours required and hourly rate, b) Material Costs and Material Handling Charges, and c) Vehicle Costs.
- 174.2 With respect to the First Subsequent Meter charge, under what circumstances would this meter be required and who would pay for the cost of the actual meter?
- 174.3 With respect to the Additional Meter Installations charge, under what circumstances would additional meters be required and who would pay for the cost of the actual meter?
- 174.4 Please provide the supporting details (i.e., labour and vehicle time and costs) to support the manual reconnection performed on overtime charge of \$280 per meter.
- 175.4.1 If there is more than one meter at the site requiring reconnection, why would each one be subject to the same \$280 charge?

**175.0 Reference: Exhibit B-1, pages 8-9 to 8-11**

- 175.1 Under what circumstances is a manual reconnection deemed to have been performed on overtime?
- 175.2 If a customer requests a reconnection outside of normal working hours is the customer advised, in advance, whether the reconnection will be subject to a “manual reconnection performed on overtime” charge or not before the work is performed?
- 175.3 Under what circumstances is the customer deemed to have “refused access” (per page 8-11). For example, if the customer is not at home and BC Hydro is unable to access the meter, is the customer deemed to have refused access?

**176.0 Reference: Exhibit B-1, page 8-7 and Appendix G1-B, page 10**

- 176.1 Please describe the circumstances under which a “Service Connection Call-Back Charge” would be levied.
- 176.2 Why is the number of PLTs required for this work 1.33 as opposed to 1.0?
- 176.3 Please explain why there is variation in travel time for the various charges that are costed out in Appendix G1-B, ranging from 0.6 hours to 1.0 hours.

**177.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

- 177.1 Please confirm that the purpose of BC Hydro’s late payment charge is to incentivize customers to pay their bills on time.

207.1.1 If not confirmed, please describe the purpose of the late payment charge.

**178.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

178.1 Assume for purposes of this Information Request that a residential bill is rendered on Day 1. Assume further the bill remains unpaid. Provide the timeline of each collection step until the bill is final-billed for nonpayment. Identify the Day on which each step of the collection process can be expected to occur. If this timeline varies depending on the account holder's credit history, please provide each possible timeline. If this question is fully answered by at Appendix C-3B, Attachment 1 (p. 2176 of the PDF file), please advise.

**179.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

179.1 For the most recent 12-month period available, by month for residential accounts, please provide:

- (a) What percentage of bills were paid by the due date of the bill.
- (b) What percentage of bills were paid by the time the next month's bill is rendered.
- (c) What percentage of those bills were paid by the time the second subsequent bill is rendered.
- (d) What percentage of those bills were paid by the time the third subsequent bill is rendered.

**180.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

180.1 Please provide the dollars of residential late fee revenue collected by month for each month January 2012 to present.

180.2 Please provide the number of residential accounts paying a late charge by month for each month January 2012 to present.

**181.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

181.1 Please provide a single copy of all studies within BC Hydro's custody or control documenting the effectiveness of a late payment charge as an incentive to pay for:

- (a) Residential utility customers.
- (b) Low-income residential customers.

**182.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

182.1 Please provide by month for each month January 2012 to present, a distribution of the number of residential accounts in arrears by the size of arrears by the following bands: (1) \$0 - \$100; (2) \$101 - \$200; (3) \$201 -

\$300; (4) \$301 - \$500; (5) \$501 - \$750; (6) \$751 - \$1,000; (7) \$1,001 - \$2,000; and (8) \$2,001 and above. If these bands are not available, please provide the numbers of accounts by which bands are available.

**183.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

- 183.1 Please provide the total costs of the Accenture Business Service (ABSBC) credit and call center included in revenue requirement for this rate case.
- 183.2 Separately provide the total ABSBC costs for each of the past three fiscal years.
- 183.3 For each total cost provided in response to “a”, provide the allocation of those total costs to credit and collection.
- 183.4 For each allocation provided immediately above, provide both a description of the basis upon which the allocation was made and the data on which the allocation was made.

**184.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

- 184.1 Please provide, in a live Excel spreadsheet, in sufficient detail to allow replication, with all formulas intact, the derivation of the weighted average interest cost cited in BC Hydro’s application using a weighted average cost of debt of 4.28%.

**185.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

- 185.1 Please provide by month since January 2012:
  - (a) The total number of calls received for BC Hydro by ABSBC credit and call center, disaggregated by the reason for the call;
  - (b) All studies, evaluations, reports or other written documents of any nature that assess or otherwise discuss an allocation of staff time in hours, days, or increments of hours and/or days by the ABSBC credit and call center disaggregated by the reason for the call;
  - (c) All studies, evaluations, reports or other written documents of any nature that assess or otherwise discuss the degree to which in-bound calls to the ABSBC credit and call center result in first-call resolution of the reason for the call;
  - (d) All studies, evaluations, reports or other written documents of any nature that assess or otherwise discuss the allocation of ABSBC costs, disaggregated by the reason for the call, between in-bound calls and out-bound calls; and
  - (e) All studies, evaluations, reports or other written documents of any nature that assess or otherwise discuss the allocation of ABSBC costs disaggregated by calls and personal contacts.

**186.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

186.1 In a typical month, with Day 1 being the day a bill is issued, please provide the percentage of residential accounts making payments by day through Day 30. If reporting of such data is only by a time period other than a day (e.g., weekly), provide by the reporting by that time period.

**187.0 Reference: Exhibit B-1, Section 8.3.3  
Late payment charge**

187.1 Please provide a list of all circumstances other than full payment of a bill that stop:

- (a) The collection process for BC Hydro residential customers (e.g., entering into a deferred payment plan, filing a medical certificate, the winter shutoff moratorium); and
- (b) The imposition of a late payment charge on a residential account in arrears.

**188.0 Reference: Exhibit B-1, Section 8.3**

188.1 Please provide a detailed explanation of the order in which customer payments are applied against various components of an account balance. Indicate, for example, whether late payment charges are paid before usage charges, whether unpaid balances are paid in the order in which they were incurred, etc.

**189.0 Reference: Exhibit B-1, Section 8.4  
Security deposits**

189.1 For each month starting from January 2012 to present, please provide:

- (a) The number of residential accounts for whom cash security deposits were held;
- (b) The dollar amounts of cash security deposits held for residential customers;
- (c) The number of cash security deposits applied to final bills;
- (d) The percentage of final bills paid by security deposits applied to said bills; and
- (e) The dollars of cash security deposits applied to final bills.

**190.0 Reference: Exhibit B-1, pages 8-24 to 8-28**

190.1 With respect to security deposits, given the proposed “up to” wording change (per page 8-21), why would a tariff amendment be necessary if income becomes a criterion (per page 8-24)?

178.1.1 What types of factors does BC Hydro view as being possible to take into account in applying the “up to” qualification without a tariff amendment?

178.1.2 Given these factors, how will BC Hydro determine the level of security deposit required in any particular circumstance?

- 190.2 Does BC Hydro return security deposits to customers after they have established a “good payment history” (per page 8-19)?
- 178.2.1 If so, how long a period of “good payment” is required?
- 190.3 With respect to Billing Errors, what is the standard extended repayment period employed by BC Hydro?
- 190.4 With respect to the Disconnection Grace Period, what are the specific process changes that BC Hydro is looking to implement?
- 190.5 With respect to Arrears Payment Arrangements, is the repayment period common for all with similar sizes of outstanding balances or is there currently some flexibility to the repayment period?
- 190.6 What is BC Hydro’s current policy/practice with respect to Winter Disconnects?

**191.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 191.1 Disaggregated by heating and non-heating residential customers, please provide by month for each month January 2012 to the present:
- (a) The average bill for all residential accounts;
  - (b) The average arrears of residential accounts in arrears;
  - (c) The average bill of residential accounts in arrears;
  - (d) The total dollars of residential arrears
  - (e) The percentage of residential dollars constituting arrears;
  - (f) The percentage of billed residential accounts having arrears; and
  - (g) The average arrears of all residential accounts disconnected for nonpayment in that month.

**192.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 192.1 Please provide the final low income terms and conditions “business case” analysis prepared by the BC Hydro in 2015.

**193.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 193.1 Please provide a copy of all reports, evaluations, memos, analyses or other written documents of any nature containing BC Hydro methodology, procedure or process designed to systematically review, study or assess BC Hydro residential billing and/or payment records in an effort to:
- (a) Characterize patterns of nonpayment;
  - (b) Identify the characteristics of nonpayers;
  - (c) Identify predictors of nonpayment;
  - (d) Identify strategies to reduce nonpayment;
  - (e) Identify early indicators of nonpayment.

**194.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

194.1 Disaggregated by heating and non-heating customers, please provide the number of residential accounts by month for each month January 2012 to present.

**195.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

195.1 Please identify all BC Hydro accounts that include expenses for the following residential collection activities:

- (a) Late payment notices;
- (b) Notices of disconnection for nonpayment.
- (c) Disconnections for nonpayment.
- (d) Field collections not involving disconnection for nonpayment.

Separate these expenses by sub-accounts if available.

**196.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

196.1 For Fiscal Years 2013 to present, please provide period-end totals of collection expenses booked to each account and sub-account identified in the Information Request immediately above.

**197.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

197.1 For Fiscal Years 2013 to present, please provide a copy of all BC Hydro budget documents specifically identifying collection activities as a separately stated line-item.

- (a) Provide those budget documents indicating the budgeted expenditures year-to-date;
- (b) Provide those budget documents, if different, of actual expenditures year-to-date.

**198.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

198.1 Please provide a copy of all written documents that explain, assess or otherwise discuss the criteria BC Hydro uses to assess on an ongoing basis the effectiveness of its current credit and collection activities.

198.2 Separately provide any written assessment, evaluation, report or other written document of any nature prepared since January 1, 2010 which discusses the effectiveness of BC Hydro's current credit and collection activities.

**199.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

199.1 Please provide all written studies currently within BC Hydro's custody or control, whether or not prepared by or for BC Hydro, that explicitly assess the extent to which the following activities reduce residential bad debt:

- (a) Cash security deposits;
- (b) Deferred payment agreements;
- (c) Disconnections for nonpayment;
- (d) Field collections;
- (e) Call center collection calls;
- (f) Budget billing plans;
- (g) Late payment charges.

**200.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

200.1 Please provide all written studies currently within BC Hydro's custody or control, whether or not prepared by or for BC Hydro, that explicitly assess the extent to which the following activities reduce residential arrears:

- (a) Cash security deposits;
- (b) Deferred payment agreements;
- (c) Disconnections for nonpayment;
- (d) Field collections;
- (e) Call center collection calls;
- (f) Budget billing plans;
- (g) Late payment charges.

**201.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

201.1 Please provide any documents, analyses or reports in BC Hydro's custody or control, whether or not prepared by or for BC Hydro, that indicates, evaluates or otherwise discusses the amount which residential arrears must reach in order for BC Hydro to cost-effectively disconnect service due to the arrearage.

**202.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

202.1 Please indicate whether residential late payment charges are compounded. In other words, please indicate whether residential late fees are imposed on unpaid late fees.

**203.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

203.1 Please provide a copy of a typical residential notice of disconnection for nonpayment printed in each of the following months:

- (a) November 2014
- (b) January 2015
- (c) April 2015
- (d) August 2015

If more than one type of residential disconnection notice is issued, provide a copy of each.

**204.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

204.1 By month for each month January 2012 to present inclusive, please provide:

- (a) The number of new deferred payment arrangements entered into;
- (b) The average downpayment (in dollars) of deferred payment arrangements entered into disaggregated by the arrearages at the time the deferred payment arrangement is sought;
- (c) The average term (in months) of deferred payment arrangements entered into;
- (d) The average dollar amount of arrears made subject to the deferred payment arrangement disaggregated by their term (in months) of the payment arrangement agreement;
- (e) The average monthly installment of deferred payment arrangements disaggregated by their term (in months) of the payment arrangement agreement;
- (f) The distribution of new deferred payment arrangements by their term (in months);
- (g) The number of defaulted deferred payment arrangements;
- (h) The number of defaulted deferred payment arrangements disaggregated by their term (in months) of the payment arrangement agreement;
- (i) The number of completed (or “successful”) deferred payment arrangements disaggregated by their term (in months) of the payment arrangement agreement.

**205.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

205.1 Please list all the programs and initiatives BC Hydro has undertaken since January 2010 to reduce the number of residential disconnections for nonpayment; if available, the metrics BC Hydro uses to determine if these programs are successful; and the results of any application of evaluation using those metrics.

**206.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

206.1 Please list all the programs and initiatives BC Hydro has undertaken since January 2010 to reduce the number of delinquent residential accounts; if available, the metrics BC Hydro uses to determine if these programs are successful; and the results of any application of evaluation using those metrics.

**207.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 207.1 Of the residential accounts receiving a notice of an impending disconnection for nonpayment, for each month January 2012 to present inclusive, please provide:
- (a) The total number of accounts that did not have their service disconnected by the date specified in the disconnect notice;
  - (b) The total number of accounts that did not have their service disconnected prior to the next bill received after receiving the notice of disconnection;
  - (c) The total number of accounts that did not have their service disconnected for nonpayment after receiving a disconnect notice for nonpayment that voluntarily terminated their accounts;
  - (d) The total number of accounts that did not have their service disconnected because the customer paid their bills in full prior to their scheduled disconnection;
  - (e) The total number of accounts that did not have their service disconnected because the customer paid their bills less than in full but sufficient to avoid their scheduled disconnection;
  - (f) The total number of accounts that did not have their service disconnected even though they retained an arrears that was sufficient large (or sufficiently old) to trigger a disconnection); and
  - (g) The total number of accounts on which account no payments were made prior to the issuance of the next bill after issuance of the disconnect notice.

**208.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 208.1 Please provide each customer segmentation study that has been prepared for BC Hydro of its residential customers since January 2010. If no such study has been prepared since January 2010, please provide the most recent study.

**209.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

- 209.1 Please provide a copy of all written documents, of any nature, including tariffs, staff training manuals and staff "procedures" manuals, that describe and explain the circumstances under which:
- (a) Termination of service is appropriate as well as the circumstances under which termination of service is not appropriate;
  - (b) It is appropriate and/or inappropriate to negotiate deferred payment plans
  - (c) A cash security deposit is required of: (i) a new customer; and (ii) an existing customer;
  - (d) It is appropriate and/or inappropriate to place residential customers on a leveled monthly (or budget) billing plan;
  - (e) BC Hydro will turn a residential account over to a third party collection agency for collection.

**210.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

210.1 Please provide a copy of all reports, evaluations, memos, analyses or other written documents of any nature containing an articulation of performance indicators on which empirical data has been collected for BC Hydro with respect to:

- (a) Debt prevention;
- (b) Debt management;
- (c) The treatment of vulnerable residential customers;
- (d) Customer satisfaction.

**211.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

211.1 Please provide a copy of all reports, evaluations, memos, analyses or other written documents of any nature prepared since January 2010 establishing performance indicator targets to be met within the next year after publication of the performance targets; within the next two years after publication of the performance targets; or within the next three years after publication of the performance targets, with respect to:

- (a) Debt prevention;
- (b) Debt management;
- (c) The treatment of vulnerable customers;
- (d) Customer satisfaction.

**212.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

212.1 Please provide a copy of all reports, evaluations, memos, analyses or other written documents of any nature prepared since January 2010 assessing, evaluating or otherwise discussing whether the one-, two- and/or three-year performance indicator targets identified in the response to the immediately preceding question were fulfilled, satisfied or otherwise achieved.

**213.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

213.1 Please provide by month for each month January 2012 to present:

- (a) The number of unpaid residential accounts turned over to third-party collection agencies for collection;
- (b) The dollars of unpaid residential accounts turned over to third-party collection agencies for collection;
- (c) The dollars of unpaid residential accounts actually collected by third party collection agencies;
- (d) The percentage of unpaid residential dollars actually collected by third party collection agencies;
- (e) The dollars of fees paid to third party collection agencies for the collection of unpaid residential accounts; and
- (f) The percentage of collections / billings charged by third party collection agencies disaggregated by : (1) whether unpaid bills assigned to the agency are actually collected; or (2) whether unpaid

bills assigned to the agency are not collected.

**214.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

214.1 Please provide a copy of:

- (a) The results of any call center satisfaction transactional research survey (e.g., “point-of-contact” survey, “moment of truth” survey) performed within the immediately preceding 36 months.
- (b) A copy of the survey;
- (c) A description of the survey methodology, including but not limited to the sample size, how the targets are selected, and the like.
- (d) An explanation of how BC Hydro uses the results of this survey to improve service to its customers.

**215.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

215.1 Please provide each study benchmarking BC Hydro’s customer satisfaction, revenue collection, revenue protection, or other customer service activities against national, regional or size-based peer electric companies.

**216.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

216.1 Please provide a list of all internal policy constraints placed on the disconnection of service for nonpayment. Such constraints might include, but not be limited to, a minimum dollar level of arrears that must be reached before a disconnection for nonpayment is performed; a minimum age of arrears that must be reached before a disconnection for nonpayment is performed; and other similar policies. For each item on the list, provide the specific constraint. For example, provide the dollar amount above which arrears must be for the account to be disconnected. Provide the age an arrears must be before it is disconnected.

**217.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

217.1 Please provide by month for each month January 2012 to present:

- (a) The interest rate paid on credit balances for residential accounts using Equalized Billing; and
- (b) The interest rate charged on account balances for residential accounts using Equalized Billing.

**218.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

218.1 For each month, or other time period as is reasonably available, please provide the number of cash security deposits requested for new customers disaggregated by whether the basis for the security deposit request was: (1) a poor payment history with a public utility; (2) a credit

score from Equifax; and (3) a credit score from a credit reporting agency other than Equifax.

**219.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

219.1 Please indicate by month, or other time period as is reasonably available, the percentage of Equifax credit scores upon which BC Hydro relied to determine the need to request a cash security deposit which scores were based exclusively on utility bill payment history.

**220.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

220.1 For each fiscal year 2012 to current inclusive, separated by residential and non-residential accounts, please provide:

- (a) The total budgeted collection costs associated with handling delinquent accounts, excluding administrative and overhead expenses; and
- (b) The total actual collection costs associated with handling delinquent accounts, excluding administrative and overhead expenses.

**221.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

221.1 Please provide a comprehensive list of the options that a residential customer has to pay their BC Hydro bill. The list of payment options should include, if available, payment through a third party authorized community pay station (or payment center). In addition, for each option:

- (a) For each month January 2012 to present, please provide the number of payments received through each option;
- (b) Indicate the fee, if any, which is imposed to utilize that option;
- (c) Provide a detailed cost justification for that fee; and
- (d) For each year 2012 to present, please provide the dollars generated by such fee.

**222.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

222.1 For each month January 2014 to present, inclusive, provide the total billing by month and the rate at which the billings in each month are converted into receipts, in substantially the following form:

Month	\$s of Billed Revenue	Collected Receipts in Dollars													
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	After Dec	Total
JAN															
FEB		---													
MAR		---	---												
APR		---	---	---											
MAY		---	---	---	---										
JUN		---	---	---	---	---									
JUL		---	---	---	---	---	---								
AUG		---	---	---	---	---	---	---							
SEP		---	---	---	---	---	---	---	---						

OCT		---	---	---	---	---	---	---	---	---	---				
NOV		---	---	---	---	---	---	---	---	---	---				
DEC		---	---	---	---	---	---	---	---	---	---	---			
Etc.															

**223.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

223.1 Please provide a copy of all written documents, of any nature, including tariffs, staff training manuals, and staff "procedures" manuals, that set forth the credit scoring techniques BC Hydro uses for residential customers. Specifically, this request is for all written documents that describe:

- (a) The credit scoring techniques, including the factors considered and the weight (or score) given to each factor;
- (b) The uses to which BC Hydro puts credit scoring for residential customers; and
- (c) The specific decisions (e.g., whether to impose a deposit, whether to allow a deferred payment arrangement, etc.) to which BC Hydro puts the credit scoring analysis.

**224.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

224.1 Please provide a list of the names and addresses of locations where a residential customer can walk in and make personal contact with a BC Hydro service representative that:

- (a) Is capable of immediately responding to an inquiry about a residential bill;
- (b) Can negotiate a deferred payment arrangement for an outstanding bill;
- (c) Can negotiate a resolution to an outstanding shutoff for nonpayment; or
- (d) Can negotiate a service reconnection after a shutoff for nonpayment.

**225.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

225.1 For each office listed in response to the data request above, please provide the following:

- (a) The actual number of BC Hydro personnel whose job it is to handle these walk-in customer contacts for each year for the past three years;
- (b) The budgeted number of BC Hydro personnel whose job it would be to handle these walk-in customer contacts for each year for the past three years; and
- (c) The number of walk-in customer contacts for each year for the past three years.

**226.0 Reference: Exhibit B-1, Section 8.6  
Low-income terms and conditions**

226.1 Please provide a list of each:

- (a) Community served by BC Hydro, along with the number of residential customers served in that community.
- (b) Postal code served by BC Hydro, along with the number of residential customers served in that postal code.

**227.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

**Preamble:** BCOAPO understands that BC Hydro currently has the ability to place a Late Payment Charges (LPC) lock and Notice bypass on an account, which will waive any late payment charges and Dunning procedures.

- 227.1 Please confirm the existence of the LPC lock and Notice bypass.
- 227.2 Please confirm whether this is the same thing as a “Dunning lock”.
- 227.3 What criteria does BCH use when deciding whether to put an LPC lock and bypass notice on an account?
- 227.4 How many accounts had such locks placed on them in 2014?

**228.0 Reference: Exhibit B-1, Section 8.6**  
**Low-income terms and conditions**

**Preamble:** BCOAPO understands that BC Hydro offers a “third party notification” option, in which a customer can opt to have a third party notified if the customer is facing disconnection (i.e. customer has entered the Dunning process).

- 228.1 Has BC Hydro considered any ways to make this process simpler for customers to set up?

**229.0 Reference: Exhibit B-1, Section 8.6, Table 8-6, p. 8-27**  
**Load limiting**

**Preamble:** BC Hydro states the following in Table 8-6, which compares the OEB Low Income Customer Rules with BC Hydro’s current Electric Tariff Terms and Conditions:

“BC Hydro is investigating the feasibility of using smart meters to limit the allowable load to a customer. If practical, this would allow a customer facing disconnection to be provided with a minimal supply of electricity (i.e., to allow some heating) but also limit the exposure to further non-collection. If this approach is practical, BC Hydro would prefer a load limiting solution to a broad moratorium on winter disconnection”

- 229.1 Please describe what BC Hydro is doing to investigate the option of limiting the allowable load to a customer.
- 229.2 What are the results of BC Hydro’s investigation into load limiting so far?

**230.0 Reference: Exhibit B-1, Section 8.6.2.3  
Ministry of Social Development and Social Innovation (MSDSI)**

230.1 Is BC Hydro developing information sharing agreements with MSDSI?

230.2 If yes, what is the status of those agreements, and what will they cover?

**231.0 Reference: Exhibit B-1, Section 8.6.2, p. 8-32  
MSDSI**

**Preamble:** BC Hydro states the following in the Application with regard to Extended Payment Deferrals and Instalment Plans for Customers Receiving MSDSI Direct Employment Assistance (EA):

“For a customer with an overdue amount incurred while receiving assistance from MSDSI, BC Hydro will make payment arrangements with MSDSI. MSDSI pays 50 percent of the overdue amount, including the reconnection charge if applicable, when the direct EA is set up and pays the remaining 50 per cent over 12 monthly instalments in addition to the customer’s Equal Payment Plan bills”

231.1 Please confirm that for the above-referenced customers, MSDSI makes payments directly to BC Hydro, but this amount is deducted from the customer’s Employment Assistance?

Please also confirm that the customer is not permitted to determine the amount (i.e. it is arranged by BC Hydro and MSDSI).

231.2 How did BC Hydro and MSDSI arrive at the 50% upfront, 50% in 12 monthly installments arrangement for repayment?

**232.0 Reference: Exhibit B-1, Section 8.6.2.3, p. 8-33  
MSDSI**

**Preamble:** BC Hydro’s Application states that “MSDSI indicated it has approximately 130,000 clients receiving income assistance, the majority being BC Hydro customers.”

232.1 For F2013 to present, please provide the number, by year, of MSDSI clients that are also BC Hydro customers.

**233.0 Reference: Exhibit B-1, Section 8.6.2.3, p. 8-33  
MSDSI**

**Preamble:** The Application states that “MSDSI directly pays BC Hydro for the electricity bills of 5,521 of those customers [receiving MSDSI assistance].”

233.1 Are the 5,521 customers whose bills are paid directly by MSDSI the result of payment arrangements to avoid disconnection or Equal Payment Plans?

**234.0 Reference: Exhibit B-1, Chapter 8**

234.1 Has BC Hydro considered any ways to make it easier for customers to opt for electronic billing?

234.2 For example, could BC Hydro regularly offer customers incentives such as draws and contests in order to encourage customers to switch to electronic billing?

**235.0 Reference: Exhibit B-1, Chapter 8**

235.1 Apart for street lights, does BC Hydro allow other types of attachments (e.g. by telephone and cable companies) to its poles?

235.2 If yes, does it charge for the use of its poles?

179.2.1 If yes, what is the charge and why is it not included as a Standard Charge?

179.2.2 If not, why not?