

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

INFORMATION REQUEST ROUND NO: **1**

TO: **BC Sustainable Energy Association and Sierra Club of British Columbia**

DATE: **May 1, 2012**

PROJECT NO: **3698622**

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

1.0 Topic: DSM --

Reference: Exhibit C10-13, Direct Testimony of John Plunkett, page 2

Mr. Plunkett states that he has testified in numerous regulatory hearings in Canada and the U.S.

- 1.1 Please provide copies of Mr. Plunkett’s testimony in any North American regulatory proceedings since 2006, other than those before the BCUC.

2.0 Topic: DSM -- Cost of DSM savings

Reference: Exhibit C10-13, Direct Testimony of John Plunkett, page 11

Mr. Plunkett states, *“Dividing historic spending by the annual incremental energy savings indicates that BC Hydro spent \$0.20-\$0.22 per annual kWh in F2009-10. In F2011, BC Hydro spent \$0.51 per annual kWh in F2011 due to one-time write-downs from an industrial program. I refer to this as the unit cost of annual savings.”*

He goes on to describe how this is converted to a levelized unit cost, using a measure life of 15 years, and then states that this is *“directly comparable with the avoided marginal cost of energy supply...”,* which he states as \$0.14268/kWh.

- 2.1 The reference for the \$0.22 and the \$0.51 is to BC Hydro’s performance reports filed as Attachment 8 to Exhibit B-1-3B. Please give a more specific reference as to where these numbers come from in that Attachment, and precisely how they were calculated.
- 2.2 The reference to “one-time write-downs” appears to result from the underperformance of one program, yet it has elevated the unit cost of the whole portfolio of programs by a factor of 2.5. Doesn’t this 2.5-times-increase constitute a rather high level of uncertainty associated with the unit costs for DSM programs?
- 2.3 When DSM programs result in costs that are 2.5 times the original estimates, what does the utility typically do to recover those costs?
- 2.4 Mr. Plunkett uses the term “measure life”, whereas BC Hydro generally refers to the “persistence” of a program or measure. Please give the precise definitions of each of these terms, and describe how they differ.
- 2.5 Based on Mr. Plunkett’s experience, please describe how the measure life and the persistence are determined, empirically, in practice. In Mr. Plunkett’s experience, is there a standard methodology used by all program administrators, or is there some variability?

- 2.6 In calculating the persistence or measure life attributed to a DSM program, how is the DSM program evaluator supposed to allow for the level of efficiency improvements and energy savings that would have occurred through natural conservation, even in the absence of the program expenditures?
- 2.7 In the assumptions used by BC Hydro, as stated in Exhibit B-1-3B Attachment 6, a persistence of 30 years is assumed for Residential Behaviour Programs. In Mr. Plunkett's experience, what other jurisdictions are assuming such a long persistence for any DSM program? How does this long persistence allow for the effects of natural conservation and efficiency gains that would be expected to occur over such a long period?
- 2.8 In Mr. Plunkett's experience, what levels of program persistence are being assumed for different programs in other jurisdictions? Please give examples for specific programs, to compare to BC Hydro's assumptions.
- 2.9 In calculating the savings attributed to a DSM program, how is the program evaluator supposed to allow for the level of savings that have resulted from the consumer's response to electricity price changes that were taking place at the same time as the program expenditures?

3.0 Topic: DSM -- Cost of DSM savings

Reference: Exhibit C10-13, Direct Testimony of John Plunkett, page 12

A general reference is given for the \$0.14268/kWh avoided supply cost, as Exhibit B-1-3B, Attachment 6, page 191. However, on that page, BC Hydro cites a figure of \$129 per MWh, being the current reference energy price from the 2008 Clean Power Call firm energy price.

- 3.1 Please explain exactly how the \$0.14268 cost was calculated.
- 3.2 In Mr. Plunkett's experience, what are other jurisdictions assuming about the current cost of avoided energy supply, and what assumptions do they make about continued escalation?
- 3.3 Given that the cost of wind energy has fallen dramatically over the past 20 years, and is forecast to continue dropping due to efficiency gains and manufacturing economies of scale, does Mr. Plunkett think it is wise to continue to assume such a high cost for the avoided supply? What alternative assumptions are other jurisdictions utilizing?

4.0 Topic: DSM -- Annual Energy Savings

Reference: Exhibit C10-13, Electric Energy Efficiency Resource Acquisition Options for BC Hydro, page 2, Table 1: Savings by State as Reported by ACEEE

Table 1 provides the Total Incremental Electricity Savings from 2006 to 2009 for each of the 50 US states.

- 4.1 The table does not appear to list the states in any particular order. What order is being used for this table?
- 4.2 Please provide a working Excel version of this table reordered by total electricity sales in 2009. If possible, please include additional columns for Total Electricity Sales 2009, and also the average residential electricity rates by state in 2009.
- 4.3 Have all DSM program administrators used exactly the same methodology to calculate the

incremental electricity savings reported in this table? What variations are there in the methodologies used by different program administrators? Please give some detail of the variations that you are aware of.

- 4.4 How does the EIA attempt to ensure that all DSM administrators use the same methodology for calculating the incremental electricity savings? Is there a standard methodology described somewhere? If so, please provide a full description of that standard and a reference to its source.

5.0 Topic: DSM -- Summary of US States Energy Savings and Costs

Reference: Exhibit C10-13, Electric Energy Efficiency Resource Acquisition Options for BC Hydro, page 11, Table 4: Statewide Totals by Year, Ranked by Savings as % of Sales

Table 4 provides a listing of US states and some provinces for the years 2006 to 2010, showing savings as a % of sales and the 2011 \$/kWh saved, with the entries grouped into 4 Tiers.

- 5.1 Please provide a copy of the working Excel model of this Table 4 and the associated Figure 3 that was produced from this data.
- 5.2 In examining the chart and the tabular data, certain of the outlier points would benefit from additional insight. For instance, New Jersey in 2006 and 2007, and New York in 2008 show alarmingly poor results for some of the highest expenditure levels. Please explain what other factors are at play, which are causing this anomaly.
- 5.3 Similarly, California and Vermont in 2008 are showing the highest results for relatively modest expenditures. Please explain what other factors are responsible for this exceptional performance.
- 5.4 Nevada, Connecticut, Hawaii, and the Pacific Northwest in 2008, and Nevada in 2009, all had quite respectable performance, above 1.24% savings, at costs that were all below \$0.12. How is such high performance explained at such low costs?

6.0 Topic: DSM -- Costs of Energy Savings

Reference: Exhibit C10-13, Electric Energy Efficiency Resource Acquisition Options for BC Hydro, page 16, Costs of Energy Savings

In the last paragraph on page 16, the report states, "As efficiency portfolios scale up, the law of diminishing returns takes over in two powerful and mutually reinforcing ways to increase the acquisition costs of efficiency savings. First, the available efficiency opportunities become more expensive... Second, experience shows that higher financial incentives are required to achieve participation rates... The upshot is that at the deeper end of the pool of achievable efficiency potential, the shape of the efficiency savings cost curve can be expected to become progressively steeper."

- 6.1 Does the quoted statement mean, simply put, that achieving higher levels of savings will become increasingly more expensive?

7.0 Topic: DSM -- Energy Efficiency for BC Hydro

Reference: Exhibit C10-13, Electric Energy Efficiency Resource Acquisition Options for BC Hydro, page 23, Table 9: BC Hydro's Historic Energy Efficiency

Table 9 shows BC Hydro's DSM spending and incremental energy savings from 2004 to 2011. Below the table, Mr. Plunkett states that, "Table 9 show that spending has ramped up significantly since F2004

while savings have stayed relatively flat.”

- 7.1 Is this quoted statement alluding to the same diminishing-returns phenomenon as in the previous question - and therefore that increasing levels of expenditure may not produce greater results when we are at “*the deeper end of the pool of achievable efficiency potential*”?
- 7.2 Exactly what spending has been included in the Table 9? Is it just Program spending, or does it include Codes and Standards, Rates, and portfolio level expenditures?
- 7.3 Since energy savings have been shown alongside of spending, has there been any effort to remove the effects of natural conservation, or the consumer response to price increases, or to stepped rate structures? If so, what adjustments have been made and what assumptions used?