

BRITISH COLUMBIA UTILITIES COMMISSION

IN THE MATTER OF THE *Utilities Commission Act*, RSBC 1996, c.473

and

British Columbia Hydro and Power Authority
F2009-F2010 Revenue Requirements Application

BCUC Project No. 3698514

WRITTEN ARGUMENT
OF INTERVENORS
B.C. SUSTAINABLE ENERGY ASSOCIATION
AND
SIERRA CLUB BRITISH COLUMBIA

April 27, 2009

William J. Andrews
Barrister & Solicitor
1958 Parkside Lane, North Vancouver, BC, Canada, V7G 1X5
Phone: 604-924-0921, Fax: 604-924-0918, Email: wjandrews@shaw.ca

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I. Introduction and Overview of Argument

1. These are the submissions in final argument of the Intervenors B.C. Sustainable Energy Association and Sierra Club British Columbia (“BCSEA-SCBC,” or “BCSEA, *et al*”) concerning the British Columbia Hydro and Power Authority (“BC Hydro”) 2008 Long Term Acquisition Plan (“2008 LTAP”).
2. These submissions respond to the November 21, 2008 Submissions filed by counsel for BC Hydro (“BC Hydro Argument”).
3. BCSEA and SCBC are described as follow:¹

BCSEA is a non-profit association of citizens, professionals and practitioners committed to promoting the understanding, development and adoption of sustainable energy, energy efficiency and energy conservation in British Columbia. BCSEA has eight chapters across B.C. and approximately six hundred and fifty individual and corporate members. Many of BCSEA’s members are ratepayers of BC Hydro. BCSEA’s goals include sustainable energy, energy efficiency and energy conservation in British Columbia.

SCBC is a non-profit organization of British Columbians from all walks of life who care about a broad range of environmental issues including climate change and clean energy. SCBC has over 5,000 members and supporters across the province, many of whom are ratepayers of BC Hydro. SCBC focuses on a broad range of environmental issues including climate change and clean energy. The promotion of environmentally sustainable electricity falls within SCBC’s mandate.

(1) Response to BC Hydro “1.2.2 LTAP Order Sought”

4. BC Hydro seeks “Primary relief #1: A Commission Order determining pursuant to subsection 44.1(6)(a) of the *UCA* that the 2008 LTAP is in the public interest.”
5. In response, BCSEA, *et al* take the position that the 2008 LTAP is in the public interest. BCSEA, *et al* have particular reservations and comments regarding the DSM plan, which are set out below.

¹ Exhibit C20-1.

6. BC Hydro seeks “Primary relief #2: A Commission Order determining pursuant to subsection 44.2(3)(a) of the *UCA* that ... seven expenditures are in the public interest.” BCSEA, *et al*’s positions regarding each of the seven expenditures are as follows:

BC Hydro expenditure schedules	BCSEA-SCBC position
\$418 million in F2009, F2010 and F2011 for the Implementation of the DSM Plan;	The expenditure is in the public interest, however DSM Option B Prime is superior to DSM Option A Adjusted.
\$600,000 in F2009 and F2010 to undertake and complete the Definition phase work for capacity-related DSM;	The expenditure is in the public interest.
\$1.6 million in F2010 for sustaining capital to ensure the reliability of Burrard;	The expenditure is in the public interest.
\$30.0 million in F2009, F2010 and F2011 to undertake and complete the Definition phase work for Mica Units 5 and 6;	The expenditure is in the public interest.
\$41.0 million in F2009 and F2010 to undertake and complete the Site C Stage 2 Definition and Consultation phase work;	No position.
\$2.0 million in F2009 and F2010 to complete the Definition phase work, and to Implement, the Clean Power Call; and	The expenditure is in the public interest.
\$140.1 million in F2009 to F2012 to complete the Definition phase work for, and Implement, the FNGU project Case 3 (FNU3)	No position.

7. BC Hydro seeks: “Primary relief #3: Approval of the CRPs pursuant to BCUC Directive 3 of Order G-58- 05 for inclusion in BC Hydro’s NITS update to BCTC.” BCSEA, *et al* support this request.
8. BC Hydro proposes² a concept of Commission “endorsement” under 44.1(9)(b) of the *UCA*. BCSEA, *et al* support the Commission’s use of an “endorsement” concept.

² BC Hydro Argument, p.8.

9. BC Hydro asks the Commission to endorse eight items within the 2008 LTAP.

BCSEA, *et al*'s positions regarding each of the eight items are as follows:

BC Hydro requested endorsement	BCSEA, <i>et al</i> position
A proposed Clean Power Call pre-attrition target of 3,000 GWh/year or post-attrition target of 2,100 GWh/year;	BCSEA, <i>et al</i> support this requested endorsement.
The Clean Power Call clean or renewable eligibility requirement;	BCSEA, <i>et al</i> support this requested endorsement.
BC Hydro's plan to rely on Burrard for 900 MW of dependable capacity and 3,000 GWh/year of firm energy;	BCSEA, <i>et al</i> support this requested endorsement.
The DSM amortization period remain at 10 years;	BCSEA, <i>et al</i> support this requested endorsement.
The filing of DSM performance reports on an annual, as opposed to a semiannual, basis;	BCSEA, <i>et al</i> support this requested endorsement.
The elimination of F05/F06 RRA Decision Directives 62 and 64, which relate to load displacement projects being considered as supply side alternatives, in light of the new definition of "demand side measures" found in section 1 of the <i>UCA</i> ;	BCSEA, <i>et al</i> support this requested endorsement.
The amendment of F05/F06 RRA Decision Directive 60 to read as follows: "seek approval for all new Power Smart programs with a Total Resource Cost (TRC) benefit/cost ratio of less than 1.0"; and	BCSEA, <i>et al</i> support this requested endorsement.
The continuation of BC Hydro's current capital plan review process, modified as described in Part 3 of [the BC Hydro] Argument.	BCSEA, <i>et al</i> support this requested endorsement.

10. On page 9 of its Argument, BC Hydro provides a rationale for the Commission endorsing a target size for the Clean Power Call. BCSEA, *et al* take the position that it is preferable for the Commission to express a view on the target size for the Clean Power Call in this LTAP proceeding rather than leaving the "need" for the Call to be addressed 'from scratch' in a s.71 proceeding regarding the Electricity Purchase Agreements (EPAs) arising from the Call. In taking this position, BCSEA, *et al* note BC Hydro's caveat that "If BC Hydro awards EPAs greater than the [Commission-] endorsed Clean Power Call target, the onus would be on BC Hydro to demonstrate the need for the additional energy purchased."

11. Further on page 9 of its Argument, BC Hydro provides a rationale for the Commission endorsing BC Hydro's stipulation that the Clean Power Call is open only to proposals that meet the "clean or renewable" criteria defined by the BC government. BCSEA, *et al* take the position that it is desirable for the Commission to express a view on the 'clean or renewable' requirement in this LTAP proceeding rather than leaving the exclusion of coal-fired or natural gas-fired generation proposals to be addressed 'from scratch' in the ensuing s.71 proceeding. Further, BCSEA, *et al* support Commission endorsement of the "clean or renewable" criteria in the Clean Power Call. BCSEA, *et al* note BC Hydro's caveat that its s.71 cost-effectiveness analysis would nevertheless include, among other things, "comparing awarded EPAs to a generic combined cycle gas turbine (CCGT) in the Kelly Lake/Nicola region of B.C., adjusted for location and GHG offsets."
12. Starting on page 9 of its Argument, BC Hydro addresses the order(s) it requests regarding the Fort Nelson Resource Plan, as well as Commission Issue No. 4.
13. For the reasons set out below, BCSEA, *et al* take no position regarding the Fort Nelson Resource Plan.

II. Statutory and Policy Regime

14. BCSEA, *et al* generally agree with the structure of Hydro's argument³ about Commission jurisdiction.
15. BCSEA, *et al* note that with the 2008 amendments to the *UCA* the Commission, in reviewing BC Hydro's 2008 LTAP, is statutorily required to consider four pertinent government energy objectives:
 - (a) to encourage BC Hydro to reduce GHG emissions,
 - (b) to encourage BC Hydro to take DSM measures,

³ BC Hydro Argument, p.13+.

(c) to encourage BC Hydro to produce, generate and acquire electricity from clean or renewable resources, and

(d) to encourage BC Hydro to use innovative energy technologies.

16. BCSEA, *et al* submit that the 2008 *UCA* amendments and the content of the “government’s energy objectives” bring the *UCA* beyond the traditional role of an economic regulator balancing the interests of ratepayers and public utilities providing service under a statutory monopoly.

17. Hydro asserts it has targeted all cost effective DSM. BCSEA, *et al* disagree, and assert that DSM Option B Prime is superior to DSM Option A Adjusted for the reasons set out below.

BC Hydro’s “C. Rejection of 2008 LTAP or Part of 2008 LTAP”

18. Commission Issue No. 1 states:

1. Section 44.1(7) of the Act states that the Commission’s may accept or reject a “part” of a public utility’s plan. In light of the fact that “part” is not a defined term under the Act, the Commission Panel seeks clarification of the views of the Parties as to what might constitute a “part” of the 2008 LTAP. In their submissions the Parties should address the ability of the Commission to reject a part of a public utility’s plan while still accepting it as a plan.

19. BCSEA, *et al* make the following two submissions in response to Commission Issue No. 1:

- (a) The Commission has authority to determine what constitutes a “part” of a plan under s.44.1(7) for the purpose of either accepting or rejecting that part of a plan.
- (b) If the Commission rejects a *part* of a public utility’s plan under s.44.1(7) the Commission has the authority to accept the *remainder* of the plan. The Commission does not have the authority to accept a public utility’s plan as a whole while simultaneously rejecting a part of the plan. However, the Commission would have the authority to determine that the accepted *remainder* of the plan met the requirements of s.44.1(2), (3) and (4).

20. On page 22 of its Argument, BC Hydro responds to a question from the Chair regarding the outcome if the Commission were to reject all or part of the 2008 LTAP. BC Hydro says that “it is BC Hydro’s choice as to whether it resubmits a part of the LTAP to the Commission; the Commission cannot direct BC Hydro to resubmit the rejected part of the LTAP.”
21. With respect, BCSEA, *et al* do not agree. The wording of s.44.1(7)(a) cannot be read in isolation from the rest of s.44.1. Subsection 44.1(2) states that “a public utility must file with the commission ... a long-term resource plan including all of the following...,” and then it provides a list of elements to be included in the plan.⁴ Subsection 44.1(5) authorizes the Commission to “establish a process to review long-term resource plans filed under subsection (2).” And, subsections 44.1(6) and (7) authorize the Commission, “after reviewing a long-term resource plan filed under subsection (2),” to “accept” or “reject” all or part of the plan. BCSEA, *et al* submit that the purpose of the Commission’s review of a plan filed under subsection (2) is to determine if the plan includes the statutorily required elements and meets the ultimate criterion in subsection (6), i.e., that “carrying out the plan would be in the public interest.”
22. It follows that where the Commission rejects under s.44.1(6)(b) all of a plan filed under subsection 44.1(2), the public utility cannot be said to have met its statutory obligation under subsection 44.1(2) to file a long-term resource plan. Similarly, where the Commission rejects under subsection 44.1(7) *part* of a plan and does not accept under subsection 44.1(7) the remainder of the plan, the public utility cannot be said to have met its statutory obligation under subsection 44.1(2) to file a long-term resource plan.
23. In other words, BCSEA, *et al* submit that the scheme established by s.44.1 requires a public utility to file a long-term resource plan *that the Commission accepts*.

⁴ Section 44.1(4) adds additional elements that must be included in a plan filed by BC Hydro before the end of 2020.

24. With respect, it would not make sense for the scheme established by s.44.1 to contemplate the possibility that a public utility could meet its obligation to file a long-term resource plan by filing a “plan” that did not include the statutorily required elements and/or that was determined by the Commission to be a plan the carrying out of which would not be in the public interest.

25. In that context, s.44.1(7)(a) provides a mechanism by which a public utility may rectify its previous failure to meet a statutory obligation, namely to file a long-term resource plan that the Commission accepts. The Legislature’s use of the term “may,” here, does not imply that the public utility is authorized to choose not to file a long-term resource plan that is acceptable to the Commission. Hence, the Commission *does* have authority to require a public utility to resubmit a rejected long-term resource plan or to resubmit a rejected part of a long-term resource plan.

26. BC Hydro’s Argument then states, at page 22:

(2) BC Hydro would not be legally prohibited from carrying out the 2008 LTAP (as it may be if a CPCN were sought and denied) though BC Hydro would have a heavy burden to persuade the Commission that it should be able to recover in rates the costs associated with those parts of the 2008 LTAP that were previously rejected. A possible exception to this is DSM-related expenditures, which are addressed below in section 2.1.1.2.

27. In response, it may or may not be correct, with respect, that BC Hydro would not be legally prohibited from carrying out the 2008 LTAP in the event that the Commission rejects the 2008 LTAP.⁵ However, BCSEA, *et al* respectfully submit that that point is not relevant to, and therefore does not support, BC Hydro’s assertion that the Commission does not have authority to require BC Hydro to resubmit a rejected long-term resource plan or to resubmit a rejected part of a long-term resource plan.

⁵ Presumably BC Hydro makes this assertion hypothetically, in relation to its legal argument about the meaning of s.44.1(7)(a); and not to imply that BC Hydro would actually carry out a plan the carrying out of which the Commission had found to be not in the public interest.

BC Hydro’s “2.1.1.1 Section 44.1; D. Limits of Commission Jurisdiction”

28. At pages 23-24 of its Argument, BC Hydro cites the authority of the Board of Directors of BC Hydro under the *Hydro and Power Authority Act* to supervise the management BC Hydro for the proposition that “[t]his is not a hearing intended to place the Commission in the role of management of BC Hydro.” BC Hydro describes several outcomes it says the Commission does not have the jurisdiction to direct. For example, BC Hydro says that the Commission does not have the jurisdiction to direct BC Hydro to pursue DSM Option B as opposed to DSM Option A.
29. BC Hydro also cites the B.C. Court of Appeal’s decision in *British Columbia Hydro and Power Authority v. British Columbia Utilities Commission*, [1996] B.C.J. No. 379 (BC Court of Appeal) [“*IRP Decision*”] for the proposition that “if there is a provision in the *UCA* empowering the Commission to, for example, require BC Hydro to target fuel switching from electricity to natural gas as part of its DSM Plan, it must be found in section 44.1 of the *UCA*.”
30. In response, BCSEA, *et al* make the following general points and then address two particular issues.
31. First, to be clear, BCSEA, *et al* understand that BC Hydro’s argument here relates the Commission’s jurisdiction under s.44.1.
32. Second, it is acknowledged that s.44.1 does not expressly state that the Commission may “direct” BC Hydro (or a public utility) to do or not to do something. However, that does not settle whether the Commission has jurisdiction under s.44.1 to *cause* BC Hydro to do or not to do something.
33. Third, at this early stage of the Commission’s experience with s.44.1, it is probably better to determine the Commission’s powers under s.44.1 on an issue specific basis, rather than by attempting to define a general rule that would apply to all situations. This approach may be implicit in BC Hydro’s argument, which lists and addresses a number of “examples” but does not attempt to formulate a general rule (beyond that

the Commission's authority under s.44.1 does not extend into supervision of the management of BC Hydro.)

34. Fourth, it is acknowledged that the Legislature's intention in enacting s.44.1 of the *UCA* would not have been to grant power to the Commission to supervise the management of BC Hydro, being an authority vested in the BC Hydro Board of Directors by the *Hydro and Power Authority Act*. That, however, does not mean that any matter that is within the authority of the BC Hydro Board of Directors under the *HPAA* is necessarily beyond the purview of the Commission under s.44.1 of the *UCA*. On the contrary, for example, approval of a long-term resource plan for BC Hydro is within the authority of the BC Hydro Board of Directors under the *HPAA*, however the Legislature clearly intended s.44.1 of the *UCA* to grant authority to the Commission to accept or reject such a plan, or part of it, within the framework established by s.44.1 and related sections of the *UCA*.
35. Fifth, the *IRP Decision* does confirm that the Commission's authority under the *UCA* must be found within the express terms of the *Act*. On its facts, however, the *IRP Decision* concerned what the Court found to be an attempt by the Commission to give the Commission's "Integrated Resource Planning Guidelines" the force of a Commission Order requiring BC Hydro to comply with the IRP Guidelines.
36. It is submitted that the lasting relevance of the *IRP Decision* concerns the primacy of the Legislative intention as expressed in the words of the *UCA*, not the legal relationship between the Commission and BC Hydro as such. The Court in the *IRP Decision* notes that counsel for BC Hydro pointed out that (at the time) "nowhere in the Act is reference made to planning."⁶ Based on the wording of the *UCA* and the *HPAA* at the time, the Court characterized "planning" by BC Hydro as "essentially an internal process for which the directors of B.C. Hydro have the ultimate responsibility."⁷

⁶ *IRP Decision*, para.29.

⁷ *IRP Decision*, para.28.

37. *Now*, however, the statutory context is reversed: the *UCA*, s.44.1, expressly *requires* a public utility such as BC Hydro to file a long-term resource plan, with statutorily defined elements, and expressly authorizes the Commission to accept or reject all or a part of such a plan based on a public interest criterion. *Now*, the Legislature has expressed an intention that BC Hydro’s long-term resource plans are *no longer* “essentially an internal process for which the directors of B.C. Hydro have the ultimate responsibility.” Indeed, the ultimate responsibility to accept or reject all or a part of a BC Hydro long-term resource plan now lies with the Commission and not with the BC Hydro Board of Directors.
38. Turning to particular issues, as noted above, BC Hydro says that the Commission does not have the jurisdiction to direct BC Hydro to pursue DSM Option B as opposed to DSM Option A. BCSEA, *et al* acknowledge that it would be inappropriate for the Commission to use the wording ‘the Commission directs BC Hydro to pursue DSM Option B’ (or Option A for that matter). However, BCSEA, *et al* submit that the Commission has the jurisdiction to reject DSM Option A for reasons that indicate that the Commission would (without fettering its discretion) react favourably to resubmission of a DSM Plan along the lines of DSM Option B. And, as argued above, the Commission has the jurisdiction to require BC Hydro to resubmit a DSM plan where the Commission has rejected the filed DSM plan.
39. Regarding fuel switching programs, BCSEA, *et al* commend BC Hydro’s commitment to review the potential for cost-effective fuel switching between electricity and natural gas and *vice versa*, including the GHG implications (referred to as the Fuel Switching Analysis), as part of its next DSM plan.
40. As indicated in their opening statement, BCSEA, *et al* are not supporting electricity to natural gas fuel switching programs by BC Hydro at this time. To the extent that there is a question about the Commission’s *jurisdiction* regarding the topic, BCSEA, *et al* would agree with the narrow wording of BC Hydro’s argument that “the Commission cannot require BC Hydro to amend its 2008 LTAP...” [underline added] However, BCSEA, *et al* submit that the Commission *does* have authority to comment in its

reasons for decision on the absence of something in the current long-term resource plan in a manner that conveys the approach the Commission would likely take regarding the matter in its review of the next filed long-term resource plan.

41.

42.

BC Hydro’s “2.1.1.2 Section 44.2”

43. BC Hydro states that s.44.2(5) of the UCA requires that the Commission, in determining whether to accept a 2008 LTAP-related expenditure, must consider, among other things, the most recent long-term resource plan filed by BC Hydro pursuant to section 44.1 of the *UCA* (namely the 2008 LTAP). BCSEA, *et al* do not disagree with this statement as far as it goes.

44. However, BCSEA, *et al* submit that the requirement in s.44.2(5) to consider the “most recent long-term resource plan filed ... under section 44.1” means a plan, or a relevant part of a plan, that is *accepted* by the Commission. It does not include a plan, or part of a plan, that is rejected by the Commission.

BC Hydro’s “2.2.2 Government Policy and Electricity/Natural Gas Fuel Selection”

45. BC Hydro’s Argument includes a lengthy discussion under the heading “2.2.2 Government Policy and Electricity/Natural Gas Fuel Selection,” pages 51-71.

46. BC Hydro’s analysis begins with the following points, with which BCSEA, *et al* agree:

(i) The Government has enacted legislation and adopted policies aimed at tackling climate change.

(ii) The *GGRTA* establishes mandatory B.C. GHG emissions reductions targets.⁸

⁸ For simplicity, the legislated B.C. GHG emissions reductions targets will be referred to here as “GHG targets.”

- (iii) It is predicted that existing initiatives will attain 73% of the 2020 GHG target.⁹
- (iv) The Government is resolved to implement the BC Energy Plan and the BC Climate Action Plan.
- (v) Not all segments of the energy and climate actions plans are in place yet, a key example being “electrification” as a GHG emissions reduction tool.
- (vi) There is a need for additional actions to eliminate an additional 9 million t/y GHG emissions in order to meet the remainder of the 2020 GHG target.¹⁰
- (vii) There is a need for additional actions to eliminate an additional 30 million t/y GHG emissions in order to meet the remainder of the 2050 GHG target.
- (viii) BC Hydro should support the Province’s actions on climate change.
- (ix) The four largest contributors to B.C. GHG emissions are: transportation, fossil fuel production, other industry, and residential and commercial use of energy.
- (x) These four sectors are expected to be the focus of yet-to-be-adopted plans to eliminate the GHG reductions gap.
- (xi) The Government mandated the Climate Action Team to make the recommendations in the 2008 CAT Report on how to meet the GHG emissions reductions gaps in 2020 and 2050.
- (xii) The CAT Report sets out recommendations that CAT concludes would be sufficient to meet the 2020 GHG target.

⁹ Unless otherwise indicated, references here are to GHG targets for *B.C.*

¹⁰ BC Hydro follows the terminology of the Climate Action Team Report in using the term “gap” to refer to the difference between a GHG emissions reduction target in a given year and the estimated amount of GHG emissions reductions in the applicable year that will result from existing plans and commitments.

(xiii) The CAT Report also describes actions that “must be taken now if the province is to meet its longer term 2050 target.”¹¹

(xiv) The recommendations of the Climate Action Team are not binding on the Government, although at least some of its recommendations have been implemented already.

47. BC Hydro highlights¹² some of the CAT recommendations that BCSEA, *et al* agree are particularly relevant to the topic of “Government Policy and Electricity/Natural Gas Fuel Selection.” Short descriptions of the CAT recommendations in question, and comments by BCSEA, *et al* are as follows:

No.	Recommendation	BCSEA, <i>et al</i> comment
1.1	After 2012, increase the carbon tax, if necessary to achieve GHG targets.	An increase in the carbon tax would affect the cost of natural gas for residential and commercial space and water heating, which would affect the relative cost to the customer of natural gas versus electricity for these purposes. This would tend to make electricity to natural gas fuel switching less cost-effective than they would otherwise be.
1.2	For non-combustion emissions (which are not now included in the carbon tax), by 2012, include them in either the carbon tax or the anticipated cap and trade system.	The natural gas sector vents a significant amount of natural gas. Subjecting these emissions to the carbon tax or a cap and trade system would presumably exert upward pressure on the price of natural gas, which would in turn affect the relative cost-effectiveness of natural gas versus electricity for space and water heating.
3	Develop a comprehensive public engagement and outreach program to educate individual British Columbians.	As described by BCSEA, <i>et al</i> spokesperson Tom Hackney, ¹³ BCSEA, <i>et al</i> are concerned that a BC Hydro program to promote electricity to natural gas fuel switching programs would contradict the message that the burning of fossil fuels should be reduced.
12	Require that, by 2016, all new publicly-funded buildings in the province have net-zero GHG	Requiring new buildings and new houses to have net-zero GHG emissions would affect the relative cost-effectiveness of natural gas

¹¹ CAT Report, p.8 of 45, cited by BC Hydro Argument, p.54.

¹² BC Hydro Argument, p.54.

¹³ T12:2129-30.

	emissions, and that by 2020 all new houses and buildings have net-zero GHG emissions.	versus electricity for space and water heating. Further, while electricity in BC is required to be net-zero GHG emissions by 2016 (e.g., by the purchase of offsets corresponding to any natural gas-fired generation by 2016), it is not yet clear whether natural gas used in B.C. will be required to be net-zero GHG emissions through the use of offsets.
14	Introduce an aggressive energy efficiency and renewable energy program for houses and buildings, combining incentive and regulatory approaches and coordinated across governments and utilities.	This is why BCSEA, <i>et al</i> support DSM Option B.
15	Build generation and transmission capacity for clean and renewable electricity generation and create a surplus [for export] to meet markets created by RPS requirements in US states and by the WCI cap and trade system currently being designed.	This is really a legislative topic.
16	Create a conservation culture	BCSEA, <i>et al</i> strongly support this recommendation. The messaging aspects of this imperative are a factor in BCSEA, <i>et al</i> 's position regarding electricity to natural gas fuel switching programs by BC Hydro, addressed below.
17	Introduce policies and regulations to promote electrification in new oil and gas developments.	This recommendation may be relevant to future load forecasts.
18	Accelerate carbon capture and storage deployment.	It is understood that CCS is energy intensive, and so this recommendation may be relevant to future load forecasts.

48. BC Hydro also cites the “Technology Roadmap” study done for the National Round Table on the Environment and the Economy, and the testimony of Dr. Jaccard. As noted by BC Hydro, the Technology Roadmap study focuses on the conditions that must exist for Canada to meet its (federal) GHG reduction targets by 2050.

Technology Roadmap Conclusion	BCSEA, <i>et al</i> Comments
In the residential sector, most emissions	1. This scenario assumes that by 2050

<p>reductions are attained through the adoption of electric space and water heating systems. “By 2050, virtually the entire space heating stock consists of ground source heat pumps or electric baseboards, and the entire water heating stock is electric.”</p>	<p>electrical generation is net-zero GHG emissions, which is feasible and realistic for B.C.</p> <p>2. The study does not examine in detail how this end-state scenario will be achieved.</p> <p>3. In terms of energy efficiency, there is a big difference between electric heat pumps and electric baseboard heaters.</p> <p>4. The study does not explore the possibility of transitional options, such as promotion of ducting in new residential houses initially heated with a natural gas furnace to be replaced in time with an electric heat pump, in comparison with new residential houses built with electric baseboard heating and no ducting, thereby inhibiting conversion to much more efficient electric heat pumps.</p>
<p>“The commercial sector reduces most of its greenhouse gas emissions through the adoption of electric heating systems – electric baseboards and ground source heat pumps.”</p>	<p>There is an important difference between the energy efficiency of electric baseboard heating and electric heat pumps. This needs to be addressed, even within electrification scenarios.</p>
<p>“By 2050 in the policy scenario, most passenger vehicles (85 per cent) are plug-in hybrids.”</p>	<p>This obviously affects future load forecasting.</p>

49. BC Hydro correctly notes that Dr. Jaccard, in his testimony, identified electrification of space and water heating systems as a necessary component of a scenario in which Canada meets its federal GHG emissions reduction targets.

50. BCSEA, *et al* agree with BC Hydro’s conclusion regarding the future role of electrification as a GHG emissions reduction tool, as follows:

What emerges from the above policy and associated plans with respect to conservation and aggressive GHG targets is that electrification will play a role in replacing forms of work that depend on fossil fuel energy (motor drives, transportation, space and water heating). [underline added]

51. BCSEA, *et al* would add the following four comments:

52. First, to be clear, “electrification” refers to the deliberate promotion of the substitution of electrical energy for other types of energy. In the present context, electrification involves replacing more-carbon intensive types of energy (with electricity). While GHG emissions reductions are a beneficial result of electrification, electrification is sometimes pursued primarily or secondarily for other reasons, such as the reduction of conventional air pollution and toxics emissions.
53. Second, the relationship between electrification, energy-efficiency, GHG emissions reductions, and GHG emissions offsets has yet to be fully analyzed. Both electrification and energy-efficiency can involve GHG emissions reductions. Where a particular electrification measure is more energy-efficient than the alternatives it may be unambiguously preferable in relation to GHG emissions. But where an electrification measure is *less* energy-efficient than a more carbon-intensive alternative, determining which involves fewer GHG emissions may require both quantitative and policy analysis, regarding both the short term and the long term.
54. Third, the analysis of the GHG emissions reduction benefits of electrification is further complicated by the concept of GHG emissions *offsets*. For example, BC Hydro points to the existing requirement that BC Hydro obtain “offsets” for the physical GHG emissions from natural gas-fired generation in B.C. by 2016. To the extent that such offsets are considered fully equivalent to non-emission of physical GHGs, all electricity generated in B.C. can be considered net-zero GHG for the purpose of analyzing electrification. But what if in the future some or all of the uses of natural gas for which electrification is a substitute were also subject to the same offset requirement as will apply to gas-fired generation in 2016 and beyond? In a sense it is ‘easy’ to compare the GHG emissions reductions advantages of electrification where natural gas used in electrical generation is required to be offset and natural gas used in substitution, for example, for space and water heating, is not required to be offset. But that is an artifact of the uneven application of the offset requirement; it is not evidence that electrification is necessarily and always the most effective strategy for reducing GHG emissions.

55. Fourth, the above comments do not contradict BC Hydro’s assertion that electrification will play a role in achieving GHG reduction targets. However, they do support the need for the Fuel Switching Analysis that BC Hydro proposes to undertake prior to the next LTAP.
56. Next, BC Hydro identifies and then addresses the two “connected, but diametrically opposed” topics of electrification and electricity to natural gas fuel-switching.¹⁴
57. Before addressing the more substantive aspects of these topics, BCSEA, *et al* respectfully comment that BC Hydro’s description in the third paragraph of page 57 tends to over-simplify the two topics.
58. In the view of BCSEA, *et al*, the subject of electrification in the 2008 LTAP is not limited to whether speculative future load resulting from electrification should have been included in BC Hydro’s October 2008 Load Forecast Update. It seems clear that “speculative future load” of any type should not be included in a load forecast.¹⁵
59. That is a different question than whether the 2008 LTAP contemplates BC Hydro taking a sufficiently active role in monitoring the emerging electrification scenarios that could or would have a significant impact on future load forecasts. On that particular point, BCSEA, *et al* are generally satisfied, based on BC Hydro’s oral evidence.
60. A different aspect of “electrification” is whether the 2008 LTAP, or future LTAPs, should involve BC Hydro undertaking specific electrification *programs*.¹⁶ Examples include whether to serve new gas developments in the Fort Nelson region with electrical energy, and potential natural gas to electricity fuel-switching programs for residential and commercial space and water heating that are proposed to be discussed in the Fuel Switching Analysis.

¹⁴ BC Hydro Argument, p.57, third paragraph.

¹⁵ BCSEA, *et al* take no position on whether there is evidence of future load due to electrification that should be, but has not been, included in the 2008 Load Forecast Update.

¹⁶ The Remote Communities Electrification program is an off-grid example.

61. Regarding electricity to natural gas fuel-switching programs by BC Hydro, defining the topic as whether BC Hydro should be “required” to implement such programs topic artificially narrows the topic, since the Commission does not have jurisdiction under s.44.1 of the *UCA* to require a public utility such as BC Hydro to carry out a particular program.
62. Also, BCSEA, *et al* disagree with BC Hydro’s comment¹⁷ to the effect that advocates of electricity to natural gas fuel-switching programs by BC Hydro assert that “BC Hydro should intentionally incent people to de-electrify and in doing so increase their personal carbon footprint.” [underline added] That may be BC Hydro’s view of the consequences of electricity to gas fuel-switching programs, but it is not a fair characterization of the objectives of such proposals.
63. BCSEA, *et al* support BC Hydro’s stated expectation¹⁸ that its next LTAP will address space and water heating fuel switching in terms of both electricity to natural gas and from natural gas to electricity. Appropriately, this goes beyond mere ‘fuel neutrality.’
64. In addition, BCSEA, *et al* note with approval BC Hydro’s statement that the fuel switching topic will be addressed in the next LTAP “in such a way that it advances the understanding as to whether there is going to be, or should be, fuel switching...” [underline added] BCSEA, *et al* understand “is going to be” to refer to BC Hydro’s own proposal in the next LTAP, and “or should be” to refer to an objective analysis of available fuel switching options not limited to an option preferred by BC Hydro.
65. BC Hydro states:

This would require the unfolding of B.C. Government policy direction as well as new analysis by BC Hydro.

66. BCSEA, *et al* agree that suitable treatment of electricity to gas and gas to electricity fuel switching in the next LTAP will require new analysis by BC Hydro. However,

¹⁷ BC Hydro Argument, p.57, third paragraph.

¹⁸ BC Hydro Argument, p.57, lines 25-28.

while “the unfolding of B.C. Government policy direction” on this topic would be desirable, BCSEA, *et al* encourage an expectation that the development of the treatment of fuel switching in the next LTAP will proceed whether or not Government policy on the topic is forthcoming.

67. BCSEA, *et al* generally support BC Hydro’s proposal¹⁹ that BC Hydro lead a “Fuel Switching Analysis dialogue with stakeholders.

68. BCSEA, *et al* have the following comments regarding BC Hydro’s proposed three elements of the proposed Fuel Switching Analysis:

(a) BCSEA, *et al* concur with BC Hydro’s comments under the heading “Participation.” They would add that participation by the B.C. Government would also be desirable.

(b) BCSEA, *et al* do not disagree with BC Hydro’s comments under the heading “Cost-Effectiveness.” They would add that consideration should be given to future electricity prices (in addition to natural gas prices) under scenarios involving high actual or implicit carbon prices.

(c) In response to BC Hydro’s comments under “GHG Emission Impacts/Implications,” BCSEA, *et al* do not disagree that “existing federal and B.C. GHG-related legislation and policies are an important starting point for the analysis. However, as BC Hydro has noted with particular reference to electrification, “not all segments of the [BC Government’s energy and climate] plan are in place.”²⁰ And the federal GHG-related legislation and policies are far less developed than those of B.C., both generally and regarding electrification/fuel switching in particular. BCSEA, *et al* take the position that the Fuel Switching Analysis will have to utilize various scenarios regarding future development of GHG-related legislation and policies.

¹⁹ BC Hydro Final Argument, p.57, lines 29-30.

²⁰ BC Hydro Argument, p.52, lines 20-21.

- (d) In response to BC Hydro’s statement that “BC Hydro would be unwilling to accept the results of any study pertaining to fuel switching that does not recognize that offsets represent actual incremental reductions in GHG emissions,”²¹ BCSEA, *et al* note that it would remain BC Hydro’s prerogative to decide what it will propose in the ‘action plan’ component of the next LTAP. However, BCSEA, *et al* are not at this point in time willing to stipulate that offsets necessarily represent actual incremental reductions in GHG emissions. Important details of the scheme within which such offsets would be defined and traded remain to be determined. Indeed, it is not yet clear whether such offsets would be under a B.C.-only scheme, a Western Climate Initiative scheme, or some new scheme yet to be developed. BCSEA, *et al* believe that it is not unreasonable to envisage a fuel switching analysis incorporating both a preference for physical GHG emissions reductions as well as some recognition of GHG offsets. The groups suggest that the analytical treatment of physical GHG emissions reductions versus GHG emissions offsets be a matter left for the Fuel Switching Analysis dialogue itself.
- (e) Lastly, BCSEA, *et al* suggest that consideration be given to including other fossil fuels used for space and water heating, in addition to natural gas, within the scope of the Fuel Switching Analysis.

BC Hydro’s “2.2.2.1 Electrification Scenarios”

69. BCSEA, *et al* supports BC Hydro’s conclusion that “it is prudent to start analyzing the possible impact of significant electrification of the economy”²² driven by Federal and Provincial actions to reduce GHG emissions. BCSEA, *et al* would add that electrification as a GHG reduction tool may also be driven by consumers and businesses.
70. Much of BC Hydro’s discussion of electrification on pages 60-61 focuses on electrification as a load-forecasting topic. As noted by BCSEA, *et al* above, and as acknowledged by BC Hydro in including ‘natural gas to electricity’ fuel switching as

²¹ BC Hydro Argument, p.59, lines 2-4.

²² BC Hydro Argument, p.59, lines 9-10.

well as ‘electricity to natural gas’ fuel switching in the proposed Fuel Switching Analysis, the topic of electrification in future LTAPs potentially involves electrification *programs* by BC Hydro, not just the load forecasting implications of electrification.

71. BCSEA, *et al* note that while electrification as a GHG emissions reduction tool is mentioned in the 2007 Energy Plan the major thrust in the Energy Plan, the amendments to the *UCA* and BC Hydro’s 2008 LTAP concerns demand-side measures intended to *reduce* electricity consumption (and peak load) rather than to *foster* electricity consumption in order to reduce net carbon emissions.
72. BCSEA, *et al* believe it is important that BC Hydro’s next LTAP address the opportunities for achieving DSM savings *within* electrification scenarios. For example, where fossil-fuel to electricity fuel switching programs for space and water heating are examined (not to prejudge whether they would be recommended) BC Hydro should examine the opportunities for achieving electricity savings by promoting electric heat pumps over electric resistance heating.
73. In response to Commission Issue No. 5, BCSEA, *et al* do not favour re-opening the evidentiary record to consider new evidence regarding an electric vehicle pilot program. BCSEA, *et al* support BC Hydro’s argument that the pilot program would not have a material effect on the 2008 Load Forecast Update.

BC Hydro’s “2.2.2.2 Fuel Switching from Electricity to Natural Gas for Residential Space and Water Heating”

74. In sections 2.2.2.2 to 2.2.2.9 of its Argument, BC Hydro sets out reasons why it opposes the idea of BC Hydro conducting electricity to natural gas fuel switching programs. As stated above, BCSEA, *et al* do not support electricity to natural gas fuel switching programs at this time. However, this position is not always for the same reasons or with the same emphasis as BC Hydro adopts, therefore BCSEA, *et al*’s responses to BC Hydro’s points are set out here.

BC Hydro’s “2.2.2.3 “Government Policy and Fuel Switching from Electricity to Natural Gas”

75. BC Hydro asserts that it is clear that Government policy is contrary to electricity to natural fuel switching programs by BC Hydro.²³ In response:

- (a) BCSEA, *et al* do not dispute Ms. Van Ruyven’s evidence that she was told by officials of the Ministry of Energy, Mines and Natural Resources and the Climate Change Secretariat at a December 2008 meeting that the Government “would not formulate a policy that would result in BC Hydro promoting a program that would incent an increase in GHG emissions within B.C.” It must be said, however, that a second-hand account of oral statements by government officials is a less than optimal method for the Government to convey its policy on this important topic.
- (b) BCSEA, *et al* do not dispute BC Hydro’s evidence that “the B.C. Government is currently fuel neutral between electricity and natural gas.”²⁴ It should be noted, however, that many of BC Hydro’s GHG-related arguments against electricity to natural gas fuel switching programs by BC Hydro tend to support fossil-fuel to electricity fuel switching programs by BC Hydro – which is definitely not a fuel neutral approach.

BC Hydro’s “2.2.2.4 “Planning and Implementing Fuel Switching DSM Programs”

76. BC Hydro asserts that implementation of a cost-effective electricity to natural gas fuel switching program would not have any regional GHG impact even under a scenario in which no additional supply is being added to the BC Hydro system, arguably removing the opportunity to adjust the supply side and allowing surplus electricity to be exported.²⁵ BC Hydro says that in the event that there is no gap between the pre-DSM load forecast and existing supply, BC Hydro would not acquire any new DSM savings. In response:

²³ BC Hydro Argument, p.62, lines 6-7; and section 2.2.2.3.

²⁴ BC Hydro Argument, p.62, lines 22-23.

²⁵ BC Hydro Argument, p.62, lines 10-12; and section 2.2.2.4.

- (a) Given BC Hydro’s proposal to implement a Fuel Switching Analysis dialogue and that the fact that BCSEA, *et al* are not supporting electricity to natural gas fuel switching programs by BC Hydro in this LTAP, it is unnecessary to resolve this point at this time.
- (b) Still, BCSEA, *et al* are surprised that BC Hydro would say that in the event that there is no gap between the pre-DSM load forecast and existing supply, BC Hydro would not acquire any new (presumably cost-effective) DSM savings. In such a scenario, the cost-effectiveness of new DSM programs would depend on the expected return from incremental exports rather than the expected cost of marginal supply. Since new DSM programs would not be considered unless they were cost-effective, it would seem beneficial to the ratepayers to acquire such savings.

BC Hydro’s “2.2.2.5 “Lock Customers into Natural Gas Space and Water Heating”

77. BC Hydro asserts that electricity to natural gas fuel switching programs by BC Hydro would “lock customers that select the incentive program into a heating fuel source that could well be in the wrong direction for them personally.”²⁶ In response:

- (a) BCSEA, *et al* understand this to be a reference in part to the observation in the Conservation Potential Review that due to the mismatch between the ratio of the retail price to the utility’s marginal cost for natural gas versus for electricity, a cost-effective electricity to natural gas fuels switching program by BC Hydro could save money for society as a whole but cost the individual participant more than choosing electricity as an energy source. This is an artifact of the market pricing of natural gas versus the Heritage pricing of electricity, which was particularly evident at the time of the CPR before the Residential Inclining Block Rate structure was adopted in 2008.
- (b) BCSEA, *et al* do not automatically dismiss BC Hydro’s reluctance to implement a program that ‘locks’ customers into a particular heating fuel source. That said,

²⁶ BC Hydro Argument, p.62, lines 7-9; and section 2.2.2.5.

part, though not all, of this concern appears to rest on the assumption that the electricity rate structure will not evolve toward one in which inclining block rates equate to the marginal cost of new electricity supply.

(c) Also, it should be noted that a fossil-fuel to electricity fuel switching program by BC Hydro (electrification) would involve a similar potential for making BC Hydro “complicit” in the customer’s choice of fuel type. BC Hydro’s difficulty ending the E-Plus Rate Program may be a cautionary tale in this regard, although perhaps the problem with E-Plus Program was that the incentive was structured as a rate benefit of indefinite duration as opposed to a one-time incentive payment.

(d) On the other hand, it is acknowledged that electricity to natural gas fuel switching programs by BC Hydro would potentially lead to “lock in” in the sense of further development of the natural gas distribution system – which would be a long-term factor tending increase the use of natural gas.

BC Hydro’s “2.2.2.6 Increase GHG Emissions within B.C.”

78. BC Hydro argues²⁷ that electricity to natural gas fuel switching programs by BC Hydro would increase GHG emissions within B.C. and make it more difficult for B.C. to reach its GHG emissions targets. In response, BCSEA, *et al* do not dispute this assertion, as far as it goes. Notably, from 2016 onward natural gas used for electrical generation is required to have GHG offsets and natural gas used directly for space and water heating is not (yet, at any rate) required to have GHG offsets. And, if (IF) there was a GHG emissions reduction benefit from electricity to natural gas fuel switching programs by BC Hydro, the benefit would arise from a displacement of GHG-intensive gas-fired electricity on the margin in other WECC jurisdictions – but that is another topic.

BC Hydro’s 2.2.2.7 “Short-Term Effects of Fuel Switching are not Material”

79. BC Hydro argues that electricity to natural gas fuel switching programs by BC Hydro would cause no short-term (two year) displacement of carbon-intensive generation in

²⁷ BC Hydro Argument, p.62, lines 9-10; p.64, lines 3-10; section 2.2.2.6.

other WECC jurisdictions because BC Hydro would not be unaware of the forthcoming electricity savings from the fuel switching program; BC Hydro is implementing the fuel saving DSM program and would have built the anticipated savings into its load/resource balance. Good point.

BC Hydro's 2.2.2.8 "No Effect on GHG Emissions in Neighbouring Jurisdictions"

80. Under this heading, BC Hydro argues that even if electricity to natural gas fuel switching programs by BC Hydro resulted in BC Hydro having unexpected volumes of electricity for export (which it denies would occur) there would be no displacement of carbon-intensive generation in other WECC jurisdictions unless no state with a Renewable Portfolio Standard (RPS) wanted to acquire BC Hydro electricity to meet the state's RPS target. In response:

- (a) BCSEA, *et al* are interested in this argument, and do not dismiss it. That said, they are not sure that the evidence is sufficiently clear about how the RPS systems will interact with the WCI cap and trade system to draw definitive conclusions at this point. One factor is whether states will allow unbundled RECs to meet RPS targets, since it is not clear that with line losses and transmission constraints physical delivery of BC Hydro power to states with RPS targets will be economically viable.

BC Hydro's 2.2.2.9 "Sending Conflicting Messages to the General Public"

81. In his opening statement, counsel for BCSEA, *et al* expressed BCSEA, *et al*'s concern that encouraging fuel switching from electricity to natural gas would confuse the main message to the public regarding action on climate change:

The main blunt message in favour of action on climate change is that the burning of fossil fuels should be reduced because it causes carbon emissions. Electricity to gas fuel switching programs may well be applicable only to a very narrow range of situations. But they carry a blunt message that it's good to burn gas.

This would totally contradict the equally blunt message that the burning of fossil fuels should be reduced. Sending out contradictory messages simply creates confusion and neither message is actually conveyed. The strategic question, then, is whether the amount and the level of certainty or

uncertainty of any net carbon reduction benefits of electricity to gas fuel switching programs outweighs the damage that would be done to the effectiveness of the main programs for action on climate change.²⁸

82. This position was affirmed by BCSEA, *et al*'s policy witness Tom Hackney,²⁹ who added:

We are very concerned about communicating with the public in an effective manner that will persuade the public that reducing greenhouse gas emissions is important, and we would indeed be concerned if [there's] a program that sent a contrary message. I would not say absolutely that this would forever result in our rejecting fuel switching, but it would certainly be a concern as to how fuel switching programs would actually get presented.³⁰

83. In BCSEA, *et al* opening statement, counsel stated:

... BCSEA and SCBC are likely to conclude that whatever the carbon benefits are that could be attributed to the electricity to gas fuel switching programs by B.C. Hydro at the present time, [they] do not outweigh the potential damage to the main programs for action on climate change.³¹

84. Upon reviewing the evidence and the BC Hydro Argument, BCSEA, *et al* do, as anticipated, take a position *against* electricity to natural gas fuel switching programs by BC Hydro within this 2008 LTAP.

III. Future Regulatory Review Process

BC Hydro's "3.1 LTAP Filings"

85. BC Hydro proposes that the LTAP filing cycle be change from a two-year cycle to an approximately three-year cycle, specifically that the next LTAP would be filed two years after the Commission's decision on the preceding LTAP.

²⁸ T3:222-223.

²⁹ T12:2130.

³⁰ *Ibid.*

³¹ T3:223.

86. BCSEA, *et al* agree with BC Hydro's submission that a two-year LTAP filing cycle would be too short.
87. However, BCSEA, *et al* request that the Commission adopt a three-year LTAP filing cycle, with liberty to BC Hydro to apply to the Commission for approval of an extension of the expected date of filing. This would meet BC Hydro's concern about a two-year cycle being too short. It would also remove the uncertainty associated with the 'two years after the LTAP decision' approach.³² And, it would meet BC Hydro's expressed desire for some flexibility with respect to the exact filing date.³³

BC Hydro's "3.1.1 Alignment with RRA Filings"

88. As noted by BC Hydro, in the F09/F10 BC Hydro RRA Decision, the Commission found that s.44.2(2) of the *UCA* is an impediment to finalizing rates and recommended to BC Hydro that it consider filing DSM expenditures requests along with future revenue requirement applications (as distinct from future LTAPs).
89. BCSEA, *et al* are, of course, open to any solution that is workable. BCSEA, *et al*'s interests in this procedural issue are that BCSEA, *et al* are likely to want to participate intensively in the Commission's review of BC Hydro's DSM expenditure requests; BCSEA, *et al* are likely to want to participate intensively in only some but not all of the issues within a RRA proceeding; and BCSEA, *et al* are likely to want to participate intensively in most issues with an LTAP proceeding.
90. BCSEA, *et al* note BC Hydro's observation that a combined RRA and LTAP proceeding would be "a very large and complex review process."³⁴ BCSEA, *et al* would go further and describe a combined RRA-LTAP proceeding as *too* large and *too* complex. The groups note that the BC Hydro F2007-F2008 RRA and 2006 IEP-LTAP were initially combined and were partially separated part way through the proceedings. In BCSEA, *et al*'s view, the partial separation of the RRA and IEP-

³² BC Hydro Argument, p.76, lines 13-15.

³³ BC Hydro Argument, p.76, lines 20-22.

³⁴ BC Hydro Argument, p.77, lines 13-14.

LTAP proceedings was mainly to do with the combined proceeding being too large and too complex.

91. BCSEA, *et al* agree with BC Hydro's comment³⁵ that it would be problematic to remove the DSM expenditures request from the LTAP filing because the amount of DSM required is determined in part by portfolio analyses based on the load/resource gap. That said, with the 2008 amendments to the *UCA*, BC Hydro is mandated to pursue all cost-effective DSM savings, so it could be said that the size of the expected DSM savings drives the supply side LTAP options.
92. BC Hydro identifies a third approach: that it seek DSM expenditure approvals in the LTAP, "but for a sufficiently long period of time so that the LTAP-approved DSM expenditures cover the subsequent RRA test period."³⁶ As BC Hydro notes, this would work for the anticipated F2001 RRA filing. However, with the next LTAP expected to be filed in roughly June 2012, and a decision not expected until sometime in calendar 2013, it would be likely that F2013 would be over before there was a decision on DSM expenditure requests for F2013 in the LTAP.
93. Unfortunately, BCSEA, *et al* are not able to propose any particular solution that would solve all the problems simultaneously. BCSEA, *et al* accept BC Hydro's suggestion that it will consult with its customer and other intervenor groups. Ultimately, it may be that an amendment to the *UCA* is the best solution.

BC Hydro's "3.2 Proposed Capital Plan Review Process"

94. BCSEA, *et al* support the approach adopted in the F07/F08 RRA Negotiated Settlement Agreement. They take the position that that approach is consistent with the new the statutory provisions.
95. Commission Issue No.7 states:

³⁵ BC Hydro Argument, p.77, lines 6-12.

³⁶ BC Hydro Argument, p.77, lines 15-18.

7. In Section 4.3 of Exhibit B-10, BC Hydro proposes a threshold for major project applications. Parties are requested to make submissions on BC Hydro's definition of a threshold by addressing situations where a number of projects might constitute a program which in total would exceed the threshold but the elements of which would not individually exceed the threshold.

96. BCSEA, *et al* are satisfied with BC Hydro's explanation³⁷ that its proposed major threshold projects capital approval approach does not preclude an intervenor or the Commission from initiating Commission review of projects, or programs comprised of multiple projects, that do not meet the "threshold" dollar value.

IV. Load/Resource Balance for Integrated System

BC Hydro's "4.2.3 2008 Load Forecast Update as Appropriate Load Forecast"

97. BCSEA, *et al* do not have substantial criticisms of BC Hydro's Load Forecast or the December 2008 Load Forecast Update in particular.

98. BCSEA, *et al* would caution against arbitrary discounting of the 2008 Load Forecast Update based on speculation about the undeniably dismal current economic situation, and against arbitrary enhancement of the Forecast Update based on speculation regarding future electrification load.

"4.4 Load/Resource Gap"

99. It follows from the previous comments that BCSEA, *et al* accept the Load/Resource Gap estimates for energy and capacity set out in Table 3 and Table 4 of the BC Hydro Argument, respectively.³⁸

V. Market Context and Analysis

BC Hydro's "5.2 Greenhouse Gas Offset Price Forecast"

100. BCSEA, *et al* agree with BC Hydro³⁹ that a policy scenario approach to assessment of the impact of GHG regulation and GHG offset price variability is appropriate under the circumstances.

³⁷ BC Hydro Argument, p.80 line 25 to p.81, line 2.

³⁸ BC Hydro Argument, p.92.

101. BCSEA, *et al* also agree with BC Hydro⁴⁰ that its GHG Price Forecast should be accepted.

BC Hydro’s “5.4 Market Assessment for Clean or Renewable Electricity”

102. BC Hydro provided informative evidence regarding Renewable Portfolio Standards (RPSs), Renewable Energy Credits (RECs) and unbundled RECs, and their potential interactions with the GHG cap and trade systems, whether through the Western Climate Initiative (WCI) or some other system. RPSs and nascent cap and trade systems have developed substantially since they were addressed in the 2006 IEP-LTAP proceeding. And, it is clear that there will be considerable further development before the next LTAP.

VI. LTAP Action Items

BC Hydro’s “6.1 DSM Plan”

103. To confirm the terminology:

- (a) **Original DSM Option A** was prior to the December 2008 Evidentiary Update. Total Original DSM Option A costs are \$487.3 million over F2009-F2011, which includes \$418 million over F2009-F2011 for which BC Hydro seeks Commission approval under s.44.2(3)(a) in this proceeding. Original DSM Option A targeted approximately 10,900 GWh/y in F2020 (including loss savings).
- (b) **Adjusted DSM Option A** is BC Hydro’s DSM Plan (or proposed DSM Plan) under s.44.1(2)(b). Adjusted DSM Option A involves the same requested approval of \$418 million over F2009-F2011 under s.44.2(3)(a) as did Original DSM Option A. However, Adjusted DSM Option A targets 9,600 GWh/y of electricity savings in F2020 (including loss savings), based on the December 2008 Load Forecast Update. BC Hydro derived the Adjusted DSM Option A expected savings by first revising the Conservation Potential Review (CPR) economic conservation potential figures according to the changed load forecast, and second

³⁹ BC Hydro Argument, p.97, lines 22-26, underline added.

⁴⁰ BC Hydro Argument, p.98, lines 22-23.

adjusting the DSM A savings to make the ratio of Adjusted DSM A savings to revised CPR economic potential the same as the ratio of Original DSM A savings to the original CPR economic potential.

- (c) **Original DSM Option B** was prior to the December 2008 Evidentiary Update. It involved total expenditures of \$533 million over F2009-F2011 (compared to \$487 million for Option A), and targeted approximately 13,030 GWh/y of electricity savings in F2020 (including loss savings). DSM Option B includes all of the programs that are in DSM Option A and differs from DSM A only in that DSM B includes additional expenditures within certain programs. BC Hydro says that Original DSM Option B is not cost-effective due to deliverability risk.
- (d) **Adjusted DSM Option B** is a revision of DSM Option B based on the lower load expectations in the December 2008 Load Forecast Update. The figures for Adjusted DSM Option B were derived by BC Hydro,⁴¹ at the request of BCSEA, *et al*, using the same methodology BC Hydro used to create Adjusted DSM Option A. BC Hydro maintains that Adjusted DSM Option B is not cost-effective, because of its deliverability risk.
- (e) **DSM Option B Prime**⁴² (as BCSEA, *et al* will call it) is a variation of DSM Option B for which BC Hydro provided figures⁴³ at the request of BCSEA, *et al* during the oral hearing. DSM Option B Prime is defined as having the same expected electricity savings as DSM Option A Adjusted (9,600 GWh/y of electricity savings in F2020 including loss savings); however, DSM Option B Prime has the same proposed activities and expenditures as Original DSM Option B.

104. BCSEA, *et al* respectfully submit that DSM Option B Prime is unambiguously superior to DSM Option A Adjusted when evaluated according to the three criteria

⁴¹ Exhibit B-12, BC Hydro response to BCSEA IR 3.33.2, *et. seq.*

⁴² B' works better phonetically than it does visually.

⁴³ Exhibit B-82 and B-84.

used by BC Hydro to determine the cost-effectiveness of a DSM portfolio: unit cost, deliverability risk, and diversity.

- (a) Regarding diversity, DSM Option B Prime ranks the same as Adjusted DSM Option A: the two portfolios have the same programs.
- (b) DSM Option B Prime has an equal or better deliverability risk than Adjusted Option DSM A, because DSM Option B Prime uses higher expenditures in the same programs to achieve the same expected savings compared to Adjusted DSM Option A.
- (c) The only remaining question is whether DSM Option B Prime has a unit cost of savings that is lower than the cost of IPP supply. It does. The unit cost of DSM Option B Prime is \$51/MWh not including reduced losses. This information is provided by BC Hydro in its response to Undertaking No. 33:

QUESTION:

Applying the same methodology used to calculate the original levelized cost of \$41/MWh for DSM Option A, please calculate the levelized cost of DSM under a scenario in which DSM Option B costs are incurred and DSM savings as presented in the 2008 LTAP Evidentiary Update are achieved.

RESPONSE:

The levelized cost [of DSM Option B Prime] is \$51/MWh compared to the avoided supply cost of \$120/MWh set out in the response to BCUC IR 1.120.1 (Exhibit B-3). ... [underline added]⁴⁴

105. As a result of the preceding analysis, both DSM Option A Adjusted and DSM Option B Prime are cost-effective. However, DSM Option B Prime is more likely to achieve any given amount of electricity savings than is DSM Option A Adjusted. Hence, DSM Option B Prime constitutes “all cost-effective DSM savings” – which BC Hydro is mandated to pursue.

⁴⁴ Exhibit B-84. The Undertaking response goes on to explain that the \$51/MWh unit cost of DSM Option B Prime does not include the value of reduced losses. If reduced losses were included in the unit cost of DSM Option B Prime it would compare even more favourably with the unit cost of IPP supply.

106. If DSM Option B Prime was a DSM Plan filed by BC Hydro under s.44.1(2)(b) and a DSM expenditure schedule filed under s.44.2(1)(a), BCSEA, *et al* take the position that the evidence before the Commission in this proceeding establishes the following:
- (a) DSM Option B Prime is superior to DSM Option A Adjusted according to the legislated criteria, in particular because DSM Option B Prime is demonstrably cost-effective and has a higher probability of achieving the targeted electricity savings of 9,600 GWh/y by F2020 than does DSM Option A Adjusted.
 - (b) DSM Option A Adjusted does not target *all* cost-effective DSM savings, because it has a lower probability of achieving 9,600 GWh/y in electricity savings than does DSM Option B Prime which is cost-effective.
 - (c) DSM Option B Prime meets the B.C. government's legislated preference for, and BC Hydro's legal requirement to, pursue all cost-effective demand-side measures during the planning period.
 - (d) The Commission could, and, with respect, should, bearing in mind the factors listed in s.44.1(8), determine, pursuant to s.44.1(6) or (7), that the carrying out of DSM Option B Prime would be in the public interest.
 - (e) The Commission could, and, with respect, should, bearing in mind the factors listed in s.44.2(5), determine that the DSM Option B Prime expenditures are in the public interest and accept the expenditure schedule, pursuant to s.44.2(3)(a).
107. However, BCSEA, *et al* acknowledge that DSM Option B Prime is not a DSM plan filed by BC Hydro under s.44.1(2), and that the expenditures within DSM Option B Prime comparable to the \$418 million over F2009-F2011 within DSM Option A Adjusted are not an expenditure schedule filed under s.44.2(1)(a).
108. Furthermore, BCSEA, *et al* cannot bring themselves to say that DSM Option A Adjusted is "not in the public interest" as a device merely to justify arguing that the Commission should reject DSM Option A Adjusted and invite or direct BC Hydro to

resubmit a DSM Plan and a DSM expenditures schedule along the lines of DSM Option B Prime.

109. BCSEA, *et al* believe that, and urge the Commission to conclude that, DSM Option A Adjusted *is* in the public interest, as a DSM plan under s.44.1(6) or (7) and as an expenditures schedule under s.44.2(1)(a), even though BCSEA, *et al* DSM Option B Prime would have been an even better DSM plan and expenditure schedule.

110. That said, for the benefit of the development of the next LTAP, BCSEA, *et al* would ask the Commission to comment on whether DSM Option B Prime is cost-effective, in the public interest, and constitutes ‘all cost-effective DSM.’

BC Hydro’s “6.1.2.1 Analysis of DSM Options: Original Option A vs. Option B; D. BCSEA’s Option B Evidence”

111. BCSEA, *et al* respectfully disagree with BC Hydro’s criticism⁴⁵ of the evidence of Mr. John Plunkett regarding the merits of DSM Option B compared to DSM Option A.

112. Mr. Plunkett’s evidence is that BC Hydro’s stated fear of placing ‘too much reliance’ on DSM to meet the load/resource gap is misguided. BC Hydro implies that a combination of a smaller amount of DSM savings and a larger amount of supply-side options creates more “diversity” and resilience in the face of uncertainties than does relying largely or exclusively on DSM to meet the gap. Mr. Plunkett’s evidence is that DSM contains within it abundant diversity in the sense of including, for example, some programs that perform better in rising economic times and some programs that perform better in declining economic times. In addition, Mr. Plunkett points out that to the extent that DSM programs achieve less than expected electricity savings during economic downturns there are two counterbalancing factors: first, load is likely to be less than expected during an economic downturn as well; and, second, spending on certain DSM programs during an economic downturn may correspond to less than expected savings during the downturn (for example where new housing

⁴⁵ BC Hydro Argument, p.121, line 20 to p.122, line 12.

starts are down) but lay the groundwork for higher than expected savings during the ensuing economic recovery (when new housing starts rebound).

113. BC Hydro states:

Second, BCSEA et al asserts that BC Hydro’s risk assessment of Option B “does not reflect the modularity and scalability of discretionary retrofit programs compared to supply”. The 2008 LTAP states that BC Hydro’s DSM planning considers “the inherent flexibility of DSM.” But that does not take away the consequences of coming up short if the plan does not achieve the target.⁴⁶

114. In response, while the 2008 LTAP does *state* that “BC Hydro’s DSM planning considers ‘the inherent flexibility of DSM,’” BC Hydro fails to implement confidence in “the inherent flexibility of DSM” when BC Hydro chooses to forego low-cost electricity savings in DSM Option B on the basis of a subjective determination of “deliverability risk.”

BC Hydro’s “6.1.4.1 Use of RIM Test”

115. BCSEA, *et al* support BC Hydro’s proposed amendment⁴⁷ of Directive 60 of the F07/F08 RRA Decision as a result of the recently adopted DSM Regulation under the *UCA*.

BC Hydro’s “6.1.4.3 DSM Reporting”

116. BCSEA, *et al* support BC Hydro’s proposal⁴⁸ that the Commission amend Directive 16 of the 2006 IEP/LTAP Decision so that DSM reports would be filed annually instead of semi-annually.

BC Hydro’s “6.1.4.4 [DSM] Amortization Period”

117. BCSEA, *et al* support BC Hydro’s request⁴⁹ that the Commission endorse continuation of the ten-year amortization period for DSM expenditures.

⁴⁶ BC Hydro Argument, p.122, lines 8-12, footnotes omitted.

⁴⁷ BC Hydro Argument, p.126, lines 13-16.

⁴⁸ BC Hydro Argument, pp.129-130.

BC Hydro’s “6.1.4.5 Capacity-Focused DSM Definition Phase Expenditure Request”

118. BCSEA, *et al* support BC Hydro’s request⁵⁰ for a Commission determination that expenditures of \$0.6 million in F2009 and F2010 to complete definition phase work on capacity-focused DSM are in the public interest.

BC Hydro’s “6.1.4.6 BCSEA et al’s Estimation of BC Hydro’s Unit Costs”

119. BCSEA, *et al* accept BC Hydro’s point on page 132, lines 5-10.

120. In response to BC Hydro’s argument that unit DSM costs vary between jurisdictions for a number of reasons and therefore the comparison of BC Hydro’s DSM Option A and B unit costs is not meaningful, BCSEA, *et al* do not argue that BC Hydro’s DSM unit costs are unreasonably high. BCSEA, *et al* point to the relative ranking of BC Hydro’s DSM Options A and B compared to the DSM expenditures of other jurisdiction to show that DSM B, and certainly not DSM A, is not excessive in comparison with other jurisdictions.

BC Hydro’s “6.1.4.7 Coordination with Terasen Utilities”

121. BCSEA, *et al* do not seek a formal direction from the Commission to BC Hydro concerning improved integration between BC Hydro’s DSM programs and Terasen’s DSM programs.

122. The fact that the B.C. Government is undertaking a coordination role through the LiveSmart BC program points in the same direction as Mr. Plunkett’s evidence.

BC Hydro’s “6.2 Burrard”

123. BCSEA, *et al* support BC Hydro’s proposals regarding the Burrard Thermal Generating Plant, specifically retaining Burrard’s capacity at 900 MW and relying on Burrard for 3,000 GWh/y for planning purposes.

⁴⁹ BC Hydro Argument, pp.130-131.

⁵⁰ BC Hydro Argument, pp.131-132.

124. BCSEA, *et al* wish to strongly endorse the view that the social licence for the continued operation of Burrard is tenuous and potentially vulnerable. Any attempt to ‘ratchet up’ Burrard’s energy reliance beyond 3,000 GWh/y on the basis that it would be ‘only for planning purposes’ and would ‘not actually be used’ would quite properly, in BCSEA, *et al*’s submission, be viewed with considerable suspicion by many of the stakeholders associated with Burrard.

BC Hydro’s “6.3 IPP Resources”

125. BCSEA, *et al* support BC Hydro’s proposal that the Commission endorse a post-attrition figure of 2,100 GWh/y for the upcoming Clean Power Call.

126. BCSEA, *et al* do not support deferral of the Clean Power Call.⁵¹

BC Hydro’s “6.3.5 Requirement to be B.C. Clean or Renewable”

127. BCSEA, *et al* support Commission endorsement of the Clean Power Call being limited to clean or renewable generation projects. For the reasons expressed above, BCSEA, *et al* believe it would be better for the Commission to address this point now, rather than leaving it until the s.71 proceeding regarding the filing of the EPAs resulting from the Clean Power Call.

BC Hydro’s “6.5 Site C”

128. BCSEA, *et al* take no position regarding Site C in this proceeding. BCSEA, *et al* understand that the Peace Valley Environment Association is intended to address Site C thoroughly.

VII. Fort Nelson

129. BCSEA, *et al* are concerned that upgrading the gas-fired generation facility in Fort Nelson will necessarily increase B.C.’s emission of GHGs, certainly in a physical sense. BCSEA, *et al* believe it is important that, at the least, BC Hydro provide GHG offsets for incremental GHG emissions due to expansion of the Fort Nelson plant as soon as the expanded plant comes into operation.

⁵¹ See BC Hydro Argument, pp.165-166.

130. BCSEA, *et al* note BC Hydro's evidence that expansion of Fort Nelson plant is required even in the event that new transmission is developed to link the Fort Nelson region to the integrated grid within B.C. Accordingly, BCSEA, *et al* take no position on BC Hydro's Fort Nelson expenditure request.

VIII. CONCLUSION

131. The positions expressed above constitute BCSEA-SCBC's final submission in the 2008 LTAP proceeding.

ALL THE ABOVE IS RESPECTFULLY SUBMITTED

A handwritten signature in black ink, appearing to be a stylized name, possibly 'J. F.', written over a horizontal line.

April 27, 2009