
2008 Long Term Acquisition Plan



APPENDIX C

Status of 2006 IEP/LTAP Directives

Directive	Summary of Directives ¹	BC Hydro Response
1	The Commission Panel agrees with BC Hydro that it has an obligation as a public utility to provide reliable, cost-effective electricity supply in an environmentally responsible manner, sufficient to meet customer demand and that this obligation should form the basis of its planning objectives.	No response required.
2	The Commission Panel accepts BC Hydro's proposal regarding the timing of IEP and LTAP filings in most respects, and agrees that some flexibility is required regarding filing dates to allow it sufficient time to complete the 2007 CPR and the preliminary EE 3, EE4 and EE5 definition work, and to incorporate those studies, as well as evolving government policy, into its next LTAP.	No response required.
3	The Commission Panel directs BC Hydro to include with its next load forecast a report assessing if there are statistically quantifiable trends associated with the temperature metrics used to forecast peak and energy demands, and an analysis of whether these trends should be extrapolated or otherwise incorporated for use in predicting peak and energy usage in the future. Whether BC Hydro determines it should continue to use temperatures based on historical averages or a statistical trend for forecasting peak and energy demand, the Commission Panel expects BC Hydro to provide a clear and consistent rationale for the historical period it uses for calculating averages, estimating trends, or evaluating variability.	<p>Refer to Table 2-2; Appendix 1B of the 2007 Load Forecast, attached as Appendix D, contains a response to this Directive.</p> <p>BC Hydro analysis indicates that a 10-year rolling average of degree days is the best representation of weather for forecasting energy sales. In addition, a rolling 30-year period of the coldest daily average temperature is an appropriate method for forecasting peak demand.</p>
4	The Commission Panel accepts BC Hydro's undertaking to provide adjustments to a load forecast within the updated forecast, and in a manner that provides an explanation of the adjustments and reconciliation to the load forecast.	Refer to Table 2-2; Appendix A 1.3 to the 2007 Load Forecast (Appendix D) discusses adjustments to the Forecasts.

¹ The Summary of Directives are as per section 10.1 of the BCUC's 2006 IEP/LTAP Decision dated May 11, 2007.

<p>5</p>	<p>Subject to the issues noted above and in Sections 3.2.4 and 6.1.2, the Commission Panel finds that BC Hydro's load forecast has generally been prepared in accordance with the Commission's Guidelines and further accepts that the results of the 20-year forecast are reasonable for the purposes of the 2006 IEP/LTAP.</p> <p>At the time of filing its next annual load forecast, the Commission Panel directs BC Hydro to provide a review of its prospective forecast range as produced by the Monte Carlo simulation, relative to its historical experience.</p>	<p>Refer to Table 2-2; Section 5 of the 2007 Load Forecast discusses the historical accuracy of previous Forecast in context of the ranges of the 2007 Load Forecast as produced by the Monte Carlo simulation. In Appendix 1B to the 2007 Load Forecast, BC Hydro concludes that the Forecast ranges as produced by the Monte Carlo are a reasonable representation of the range of expected variability around the Forecast.</p>
<p>6</p>	<p>The Commission Panel directs BC Hydro to file a report with the Commission in its next IEP, identifying significant trends in the literature and summarizing the results of its statistical analyses of historical streamflows.</p>	<p>No response required. This issue will be addressed further in the next LTAP.</p>
<p>7</p>	<p>The Commission Panel accepts BC Hydro's reliance on 2,500 GW.h/yr for the purposes of the current LTAP, but considers that BC Hydro's decision to amend its policy to rely on domestic non-firm sources only, rather than on a mix of sources, remains an open issue which it expects BC Hydro to address in its next LTAP and in any approvals of acquisitions for non-firm energy in the 2007 Call.</p>	<p>Refer to Section 2.3.11; Special Direction 10 stipulates that BC Hydro can only rely on domestic IPP non-firm energy after 2015. Both domestic Heritage hydro non-firm and market energy are removed from the LTAP supply stack after that date.</p>

<p>8</p>	<p>The Commission Panel notes that in different versions of the load/resource balance BC Hydro has included a line item for “additional reserves” but this line item is found in a different location and does nothing to aid understanding of the load/resource balance. The Commission Panel directs BC Hydro to address this apparent anomaly in its next LTAP.</p>	<p>BC Hydro uses a Loss of Load Probability (LOLP) Model to calculate its 14% Planning Reserve Margin. The characteristics of the generation fleet (unit size, maintenance schedules, forced outages) are the primary factors that influence the amount of capacity planning reserves determined by the LOLP model. For this reason BC Hydro applies the 14% reserve margin to its total generation supply. The difference between the total dependable capacity and the 14% reserve margin is the effective load carrying capability (ELCC) of the system. Comparing the ELCC of the system with the forecast peak loads is the appropriate way to assess the capacity health of the system. When a resource such as Burrard is removed, the ELCC will decline, but not by the full extent of the capacity removed. This reflects the fact that the unit or units removed also contributes a portion of its capacity to the reserve margin.</p> <p>In a capacity load/resource scenario where a gap is forecast, the gap represents the incremental ELCC net of reserves that must be provided to achieve a load/resource balance. This is appropriate since the amount of incremental reserves required will depend on the nature of the resource selected to fill the gap. Some formatting changes have been made in current capacity supply/demand balances shown in the 2008 LTAP to make the presentation clearer.</p>
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	<p>Given transmission constraints noted by BC Hydro, the Commission Panel is concerned that BC Hydro is overestimating the available capacity from reserve sharing and the CE. The Commission Panel directs BC Hydro to address this issue in its next LTAP.</p>	<p>Refer to Appendix P, and Section 3.3.13 for information on transmission capacity available to deliver Canadian Entitlement to British Columbia from the United States.</p>
9	<p>The Commission Panel expects BC Hydro to consider the issue of the effects of aggregating intermittent resources on dependable capacity within the 2007 Call and in its next IEP.</p> <p>The Commission Panel is concerned that BC Hydro may be overstating the dependable capacity of future intermittent resources and directs it to continue to carry out hydrological and wind studies that may inform its estimates of dependable capacity for existing and future intermittent resources in its next call and IEP.</p>	<p>Refer to Appendix F3 (wind integration) and F12 (ELCC/FELCC)</p>
10	<p>The Commission Panel directs BC Hydro to file a study in the next LTAP that identifies the level of firm transmission capacity available to deliver the CE to British Columbia from the United States.</p>	<p>Refer to Appendix P and Section 3.3.13..</p>
11	<p>Therefore, the Commission Panel rejects BC Hydro's assumption that Burrard will have no contribution to dependable capacity or firm energy beyond F2014.</p>	<p>Refer to Section 6.2.3 - Burrard.</p>
12	<p>Given uncertainty over the future of Burrard and the availability of the existing non-firm/ market allowance, the Commission Panel finds there is a critical need for new resources based on reliability planning criteria, but that the magnitude of BC Hydro's long-term need for energy and capacity for reliability planning purposes may be somewhat overstated.</p>	<p>Refer to Section 2.3 - Existing and Committed Resources and Section 2.4 - The Load/Resource Balance.</p>
13	<p>The Commission Panel accepts the proposal described in Exhibit B-102 that BC Hydro will request BCTC to study the effects of the transmission planning assumptions related to Coastal Regional RMR generation, Interior Region Heritage resource dispatch and the treatment of intermittent resources, and that based on the outcome of these studies, BC Hydro may modify these planning assumptions as part of its NITS application.</p>	<p>Refer to Appendix F9.</p>

<p>14</p>	<p>The Commission Panel encourages BCTC to use the same transmission planning assumptions for IEP portfolio evaluations, LTAP analysis and the NITS application review. The Commission Panel directs BC Hydro to provide a description of these planning assumptions in the next LTAP application. The description of the planning assumptions should address coastal capacity reserve requirements in the determination of coastal RMR capacity, including the dispatch of Burrard.</p>	<p>Refer to Appendix F9.</p>
<p>15</p>	<p>BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that the \$1.7 million expenditures required to undertake and complete the Definition phase work of EE3, EE4, and EE5 and the updated CPR are in the interests of persons within B.C. who receive, or may receive, service from BC Hydro was approved in Order No. G-29-07.</p> <p>BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that expenditures of \$0.8 million for the electricity savings associated with the Greater Vancouver Water District micro-hydro Load Displacement project are in the interests of persons within B.C. who receive, or may receive, service from BC Hydro was approved in Order No. G-29-07.</p>	<p>No response required.</p>
<p>16</p>	<p>The Commission Panel directs BC Hydro to continue to file reports on DSM performance as described in Directive 69 included in Order No. G-96-04 and to file its Semi-Annual Demand Side Management Reports in the same format as the June 2005 Report with the following enhancements:</p> <p>(1) Provide annual and cumulative totals since program inception; (2) Express these values on a per unit basis; and (3) Provide the benefit to cost ratios for the three DSM tests.</p> <p>The Commission Panel also directs BC Hydro to continue to employ the three DSM tests in a manner consistent with Directive 70 included in Order No. G-96-04.</p>	<p>No response required.</p>

<p>17</p>	<p>Therefore, the Commission Panel directs BC Hydro to file a report containing, among other things, a financial forecast of BC Hydro's rates in both real and nominal terms, for a minimum of ten years, but preferably 20 years. Input assumptions should be summarized in a concise, but comprehensive manner.</p>	<p>BC Hydro's report on forecast of rates in both real and nominal terms will be filed with the BCUC either before or as part of BC Hydro's responses to BCUC IR No. 1. See section 1.3.</p> <p>The 2007 Reference Load Forecast reflects the impact of a long term rate forecast. The 2007 Reference Load Forecast also reflects the impacts of interim rates as filed in BC Hydro's F2009/F2010 Revenue Requirement Application. This rate impact calculation assumes current rate structures are unchanged.</p> <p>The long term rate increase forecast was used in the estimation of Demand Side Management (DSM) bill savings and lost revenues associated with the 2008 DSM plan. These variables are inputs to two DSM cost tests, specifically the Participant and Non-Participant tests, respectively. The forecast was also used in the estimation of energy savings from rate structures in the DSM plan.</p> <p>The long term rate increase forecast was not used in the 2007 Conservation Potential Review (CPR) because it was completed prior to the forecast being issued. The 2007 CPR used BC Hydro's 2006 load forecast to form its reference case.</p>
<p>18</p>	<p>BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that expenditures of \$2,875,000 required to undertake and complete the identification phase work for the 2007 Call are in the interests of persons within B.C. who receive, or may receive, service from BC Hydro was approved in Order No. G-29-07.</p>	<p>No response required.</p>

19	BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that expenditures of \$520,000 required to undertake and complete the identification phase work for the 2009 Call are in the interests of persons within B.C. who receive, or may receive, service from BC Hydro was approved in Order No. G-29-07. The Commission Panel notes that BC Hydro is not requesting approval of a Call volume at this time and the Commission Panel will not comment on the proposed volume of the 2009 Call at this time.	No response required.
20	The Commission Panel concludes that BC Hydro's options for acquiring adequate capacity in the near-term are limited and that, based on BC Hydro's preliminary analysis, Revelstoke Unit 5 may be a cost-effective capacity addition. BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that expenditures of \$12.5 million in F2007 and F2008 required to complete the Definition phase of Revelstoke Unit 5 are in the interests of persons within B.C. who receive, or who may receive, service from BC Hydro was approved in Order No. G-29-07.	No response required.
21	The Commission Panel directs BC Hydro to include the Waneta Expansion Project in its next ROR. The Commission Panel directs BC Hydro to include a pumped storage hydro project on the Jordan River in its next ROR.	Refer to Section 3.3.10 - Waneta Expansion Project and Section 3.3.12 - Pump Storage.
22	BC Hydro's request for a determination under Section 45(6.2)(b) of the Act that expenditures of \$1.0 million in F2007 and \$2.0 million in F2008 required to complete the Identification and Definition phase work for the next Revelstoke or Mica Unit are in the interests of persons within B.C. who receive, or who may receive, service from BC Hydro was approved in Order No. G-29-07.	No response required.
23	The Commission Panel finds that the use of the high load forecast is an appropriate contingency to incorporate in the CRPs, but finds a further assumption of reduced DSM response to be redundant unless BC Hydro can show in a future application a difference in the effect on the CRPs between an increase in load forecast as compared to a reduction in DSM response.	Refer to Appendix F14.

<p align="center">24</p>	<p>The Commission Panel accepts the use of the LTAP Base Case and CRPs described in Exhibit B-1E and Exhibit B-55 for use in BC Hydro's next NITS update/application. With reference to the concerns noted regarding the composition of the LTAP Base Case and CRPs, the Commission Panel invites BC Hydro, at its earliest opportunity and preferably prior to the next NITS application, to submit for approval updated LTAP Base Case and CRPs that better reflect BC Hydro's expectations of future resource additions.</p>	<p>This 2008 LTAP includes updated LTAP Base Resource Plan and Contingency Resource Plans. Refer to section 6.4.</p>
<p align="center">25</p>	<p>The Commission Panel accepts BC Hydro's argument that two tests may be considered for use in project evaluation. The first, and the more important, is an economic analysis of a project, which should only use the incremental cash flows disbursed by BC Hydro as its key input. The second, and less material test is a ratepayer impact analysis which examines how BC Hydro will recover a project's costs from its ratepayers and which may include items typically not found in a conventional economic analysis such as sunk costs, interest during construction and costs allocated from other departments of BC Hydro.</p>	<p>No response required.</p>
<p align="center">26</p>	<p>However, based on forecasts of capital expenditures and debt levels prepared by BC Hydro in this proceeding, the Commission Panel accepts that for the foreseeable future incremental capital projects will effectively be financed with 100 percent debt.</p> <p>BC Hydro borrows at rates that reflect the Provincial Government's credit rating and current nominal interest rate on 20 to 30-year debt for BC Hydro, and thus its ratepayers, is approximately 4.60 percent per annum. The Commission Panel concludes this is the appropriate discount rate for BC Hydro to use to evaluate resource options under the current assumption of 100 percent debt financing.</p>	<p>Refer to section 1.2.3. By Orders in Council No. 27 and 28 approved January 17, 2008, the Government of B.C. amended the definition of BC Hydro's equity included in Special Directive No. HC1 to BC Hydro (HSD#1) and Special Direction No. HC2 to the BCUC (HSD#2). The amended HSD#2 deems BC Hydro's equity for ratemaking purposes to be 30 per cent of the sum of BC Hydro's average debt and average equity balances for the year. The capital structure and financial assumptions used to evaluate resource options and portfolios are further described in section 3.5. The amended HSD#1 and HSD#2 are included as Appendix B4.</p>

27	Accordingly, the Commission Panel finds no justification for the use of different discount rates for the economic analysis and the ratepayer impact analysis. The Commission Panel considers the issue of risk to be dealt with adequately through the sensitivity and scenario analysis. However, the Commission Panel does continue to see value in sensitivity analyses around a single discount rate.	The use of single discount rate in the 2006 IEP/LTAP continued in the 2008 LTAP Update. In addition to the base rate that is consistent with BC Hydro's overall financial planning criteria, the 2008 LTAP also provide scenario analysis on these economic and ratepayer analyses using an alternate rate that is generally consistent with and accepted in competitive market business evaluations. Refer to Section 3.5 regarding Financial Assumptions.
28	The Commission Panel confirms Directive 60 from the F05/06 RRA Decision, which accepts three DSM cost/benefits screening tests as appropriate – Utility Cost Test, All Ratepayers Test and Non-Participant Test.	No response required.
29	Accordingly, the Commission Panel finds that BC Hydro's 2006 LTAP meets the requirements of Section 45(6.1) of the Act.	No response required.