

Long Term Electricity Transmission Requirements Inquiry

BCUC Orders No. G-30-09, G-47-09, BCUC Project # 3698545

BCSEA, et al comments on BC Hydro 23 July 2009 workshop on Generation Resource Options

14 August 2009

Introduction

BCSEA, *et al* are participants (intervenors) in the BC Utilities Commission's Long Term Electricity Transmission Requirements Inquiry.

Representatives of BCSEA, *et al* participated in BC Hydro's 23 July 2009 workshop on generation resource options. The general purpose of the workshop was to inform, and to receive feedback from, Inquiry participants regarding BC Hydro's draft information on generation resource options potential in BC. It is understood that BC Hydro's generation resource option information will be coordinated with BC Transmission Corporation's information on BCTC's plans for the development of evidence that will be filed by BCTC and BC Hydro by September 18, 2009 in accordance with the Inquiry Schedule. In addition to comments provided at the workshop, participants were invited by BC Hydro to provide written comments by 14 August 2009. These comments will be emailed to BC Hydro and copied to Inquiry participants.

BCSEA, *et al* includes: B.C. Sustainable Energy Association (BCSEA), the Sierra Club of British Columbia (SCBC), Forest Ethics, West Coast Environmental Law Association, The Pembina Institute, Dogwood Initiative, David Suzuki Foundation and Canadian Parks & Wilderness Society – B.C. Chapter (CPAWS-BC).

References are to the slides in "BC Hydro Generation Resource Options Workshop," 23 July 2009, located at

http://www.bchydro.com/etc/medialib/internet/documents/planning_regulatory/lteti/lteti_row_jul23_presentation.Par.0001.File.lteti_row_jul23_presentation.pdf.

These comments are not confidential.

Generation Resources Options Potential: Proposed Approach and Data

1. **Slide 14.** BC Hydro states that for the Transmission Inquiry BC Hydro is expanding its 2008 LTAP approach to resource options by looking at (a) the potential for emerging technologies over the Inquiry's 30-year timeframe and (b) resource options potential not constrained by interconnection costs. BCSEA, *et al* support inclusion of these two additional factors.
 2. It would be helpful for BC Hydro to confirm that "interconnection costs" in this context refers to the cost of any required transmission from the generation resource to the existing grid, as well as the cost of interconnection with grid.
 3. More generally, it is important that the September 18 draft evidence be very clear about what transmission (and interconnection) costs have or have not been included in which figures.
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4. It would be helpful for BC Hydro to discuss in its draft evidence how it dealt with the uncertainties inherent in assessing emerging technologies, since this will likely be a topic of interest.
5. **Slide 15.** Reference is made to the BCUC scoping decision (Exhibit A-18) and consideration of “climate change impact sensitivities.” Presumably the reference is to the Panel’s statement that

The Panel ... accepts that climate change impacts may be considered as alternative scenarios or sensitivity tests around future forecasts of hydro generation associated with both reduced inflows and higher demand for low-carbon electricity.¹

In the Commission’s decision regarding BC Hydro’s 2006 LTAP, the Commission directed BC Hydro to file a report on climate change impacts on Hydro’s major reservoirs in BC Hydro’s next Integrated Electricity Plan, now referred to as a Long Term Acquisition Plan. For reference the Commission states:

The Commission Panel concludes that BC Hydro should continue to assess the potential effects of climate change on its hydroelectric resources and that in addition to the activities it is currently involved in, BC Hydro should conduct statistical analyses of snow pack, annual precipitation and stream flows, freshet timing and other relevant variables and survey the relevant literature on an ongoing basis for relevant regional trends, with a view to assessing the impact on stream flows and on its major reservoirs. **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.**²

The Commission’s recent (July 27, 2009) decision on BC Hydro’s 2008 LTAP requires BC Hydro to file its next LTAP by June 30, 2010. It would be ideal if BC Hydro’s report on climate change impacts on reservoirs was ready in time for it to be used in the preparation of Hydro’s draft evidence to be filed on September 18, 2009. If it is not ready, however, it would be helpful if Hydro would include in the September 18 draft evidence some discussion of whatever information on the topic is currently available.

6. **Slide 15** refers to UECs and UCCs (unit energy cost and unit capacity cost regarding types of generation resources). It will be important for BC Hydro to specify in its September 18 draft evidence what UECs and UCCs are used as the cut-off points for inclusion versus exclusion of generation resource options.
7. Also, please clarify whether BC Hydro uses the same UEC and UCC for all generation resource options of a certain type regardless of the location within the province. For example, whether the higher costs of construction in a remote area than in an area with road access are taken into account.

¹ P.3 of 13, Reasons for Decision, Appendix A, to Order G-86-09, Exhibit A-18.

² May 11, 2007. http://www.bcuc.com/Documents/Decisions/2007/DOC_15235_BCH_IEP-LTAP_Final.pdf, p.56. Bold in the original.

8. **Slide 17.** Under the term “Filters,” BC Hydro includes both “Exclusion Areas” and “Natural Barriers.” Glaciers are given as an example of “Natural Barriers.” What other types of natural barriers will BC Hydro be including?
9. **Slide 18.** Potential Small Hydro. As above, but regarding small hydro in particular, please confirm that the UEC data used will pertain only to site costs, i.e. excludes transmission costs. If not, please explain how the data will avoid bias toward projects close to the grid at this point in the analysis.
10. **Slide 21.** Potential Natural Gas. Please confirm that UECs for gas-fired generation will include GHG offsets. Please specify the price assumptions for GHG offsets. Please confirm that CCS (carbon capture and sequestration) is not included in the potential natural gas category; or indicate the assumed cost and timing of availability.
11. **Slides 22 and 23.** Potential Wind Energy & Potential Wind. Please confirm which studies form the basis for the information.
12. Please Clarify how the analysis goes from energy resource mapping to generation potential mapping.
13. How is bias avoided toward existing Investigative Use Permit sites and sites close to these?
14. In particular, why is only one offshore wind site shown, when the resource appears to be uniformly high in several offshore areas?
15. As above, please specify whether and how the costs of transmission are included or excluded from the wind resource options results. It is noted that the Garrad Hassan study includes costs of assumed transmission line lengths varying from 25 km to 100 km, depending on geographic region – though it seems that BC Hydro is now relying on a new study, by Kerr Wood Leidal. Please provide the KWL wind study if it is available.
16. Please confirm that BC Hydro will take steps to include the wind resource potentials of areas of BC not covered by the “BC Hydro modeling domains.”
17. Please indicate if there any assumptions made about the maximum percentage of potential generating capacity that will be developed in a region (as in the Garrad Hassan study).
18. **Slide 24.** Potential Geothermal. How will BC Hydro derive estimates of generation potentials from the mapped energy resource data?
19. **Slide 25.** Potential Biomass. How and by what criteria are the potential biomass areas identified? There seems to be significant clustering around major population areas and/or existing transmission.
20. **Slide 26.** Coalfields and Coalbed Methane Potential in British Columbia. How will BCH model coal energy potential, which is contingent on technology development if it is to comply with government policy on CCS? (BC Hydro’s ROU shows some forms of CCS becoming commercial in 2010-2020 and others in 2020+.)
21. **Slide 27.** Potential Solar Insolation. How will BC Hydro derive generation potential estimates from the energy resource data?
22. **Slides 28 & 29.** Wave Power and Tidal Energy Resources and Potential Ocean (Wave, Tidal). How does BC Hydro derive generation potential estimates from the energy resource

data (recognizing that tidal potentials are fairly site-specific and wave potentials may be more diffuse)?

23. **Slide 30.** Distributed Generation. It would be very useful if BC Hydro was able to include information on distributed generation potential in the September 18 draft evidence.

Generation Resource Option Clusters, Nadja Holowaty:

24. **Slide 32.** Generation Resource Clusters. We look forward to seeing the details on how the clusters are created and characterized.
25. **Slides 35 – 39.** What process is involved in moving from energy densities to power clusters?
26. What is the function of identifying clusters on the basis of GWh/a/sq.km.? This would seem to make sense for energy types that are fairly evenly distributed across the land (e.g., to some extent, wind), but not especially helpful for location-specific projects.
27. **Slide 40 & 41.** Transmission Region Summary – After Exclusions & RO Cluster Summary – After Exclusions. Why are the energy and capacity totals different between the two tables?

Resource Options Characterization

28. **Slide 43.** Resource Options Characterization. Please characterize the resource options according to both compliance with zero-GHG emissions and compliance with Renewable Portfolio Standards (RPS).
29. The list includes a “placeholder” for “First Nations Interests” as a characteristic of a resource option. It would be helpful to include a placeholder for “Environmental Interests” as well.

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