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Dear Sir/Madam:

**RE: Comments on the Site C Clean Energy Project Draft Environmental Impact Statement.**

The North Peace Rod and Gun Club representing 789 sportsmen in the Fort St. John area of the North Peace have strong concerns on the adequacy of the draft Environment Impact Statement for the Site Clean Energy Project. Outdoor Recreation is generally recognized as a very high value in the Peace River region and in the project area; as the total numbers of members in the North Peace Rod and Gun Club attests. Additionally the attractiveness of the wildlife resources for residents of British Columbia not resident in the Peace is well known.

We submit that the assessment has provided insufficient information to assess the potential impacts of the project on the wildlife (both fish and wildlife) resources and the recreation and use of fish and wildlife by our members and other members of the BC Wildlife Federation.

In general we believe that this project's proposed impact area is insufficient to identify and document the project's impact and must be expanded to include not only the complete habitats of the wildlife that use the Peace River Valley but include the cumulative effects and restrictions on the current populations, habitats, and habitat use caused by BC Hydro's WAC Bennett and Peace Canyon projects.

Additionally we believe that the assessment cannot be adequate if it does not consider the effects on wildlife and wildlife recreation of the projected changes in micro-climate caused by the proposed Site C dam and whether wildlife can successfully adapt to these changes.

Please also find attached below more detailed comments as part of our submission.

**We request that these issues be addressed and appended to the acceptance of the Site C Clean Energy Project Draft Environmental Impact Statement prior to acceptance.**

On behalf of the Membership



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James Little, Director

North Peace Rod and Gun Club

Box 6435 Fort St. John, B. C. V1J 4H8

## **Comments on BC Hydro's Environmental Impact Statement for the Site C Clean Energy Project (January 2013)**

### **Prepared by**

John A. Nagy, PhD  
Edmonton, Alberta

### **For and in association with**

North Peace Rod and Gun Club  
March 30, 2013

### **Scope of Review**

The proposed Site C Clean Energy Project (hereafter the “proposed project”) is a major development that will affect wildlife and wild land recreation values in the Peace River Valley. The North Peace Rod and Gun Club (NPR&GC) wishes to ensure that the Environmental Impact Statement (EIS) provides sufficient information on the magnitude of the proposed project impacts on the wildlife and wildlife based recreational values of the region so the NPR&GC can adequately assess the project to provide comment to the review. More specifically, this review considered the adequacy of the January 2013 EIS submitted by BC Hydro in addressing the following:

- 1) potential wildlife loss and impacts upon local/regional/provincial wildlife supply,
- 2) estimates of potential recreational losses, including those related to the role of climate change adaptation/mitigation, and
- 3) adequacy of inventory and planning information related to wildlife recreation.

### **Comments and Concerns**

1) The spatial boundaries of the impact assessment areas are too conservative. In addition to the impact of the W. A. C. Bennett and Peace Canyon dams on wildlife resources , the proposed

project will increase regulation of water flow within the Peace River and therefore within the Mackenzie River system beyond the British Columbia/Alberta border. The effects of the proposed project on surface water regimes, water quality, groundwater regimes, thermal and ice regimes, methyl mercury, and aquatic ecosystems should be considered downstream to the Mackenzie Delta, Northwest Territories.

2) The baseline data provided suggests that there is a low probability of occurrence of blue listed grizzly bears within the proposed project assessment areas (Simpson *et al.* 2013). However, members of the NPR&GC indicated that regular sightings of grizzly bears have been made in these areas. Although the proposed project will likely have little long-term effects on road densities within the assessment areas (Simpson *et al.* 2013), the proposed project will form a barrier to the movement of bears through the Peace River Valley and may result in loss of bears through problem wildlife control actions. Grizzly bears killed in problem wildlife control actions result in lost harvest opportunities for the NPR&GC and outfitters. The impact assessment should include scientific population estimates and current habitats used by grizzly bears.

3) Resource selection function (RSF) habitat models were an important part of the assessment of potential impacts of the proposed project on ungulates (moose, elk, mule deer, and white-tailed deer; (Simpson *et al.* 2013). However, the methods provided lack sufficient information to assess how the RSF models were actually generated; applications of some procedures (i.e., determination of the most parsimonious seasonal models) appear to be inconsistent with accepted practices described in published literature. In order for the NPR&GC to assess the validity of the seasonal ungulate relative probability of habitat use models/maps presented by (Simpson *et al.* (2013) the following information is required:

- i) an explanation of how habitat availability was assessed and included in RSF analyses,
- ii) an explanation of the type of logistic regression analyses conducted (population level or individual based random-effects), and
- iii) a list of candidate models tested for each season to identify the most parsimonious RSF models (Johnson, Seip & Boyce 2004; Wasser *et al.* 2011), and
- iv) the results of analyses conducted to assess the predictive capacity of the most parsimonious RSF model selected for each season (Boyce *et al.* 2002).

The NPR&GC is concerned about the loss of ungulate habitats within and adjacent to the proposed project area and particularly the impact of the loss of these habitats during severe winters. Population assessments, boundaries of impact assessment areas, habitat models, and populations models must be revised to consider these periodic winter effects.

4) Baseline information on recreational sites, types of activities undertaken, and facilities/amenities available is provided (Volume 3 Appendix E Outdoor Recreation Mitigation Plan). The outdoor recreation mitigation plan presented is limited to and supports change from river- to reservoir-based activities. In order for the NPR&GC to determine if or how their land-based recreational activities will be affected by the proposed project they require:

- i) historic information on degree and magnitude of recreation changes resulting from the WAC Bennett and Peace Canyon projects
- ii) spatial models showing the distribution by type of land-based recreational activities currently undertaken in the area, and
- iii) spatial models showing where these activities could be conducted after the Project is completed.

This information is particularly important given that "*significant adverse effects on fishing and hunting opportunities would occur if the changes are beyond historic norms (magnitude), result in the reduction of catch limits in the LAA or bag limits in management units in the LAA (geographic context), occur over the long term (duration), and are such that anglers and hunters cannot respond and adapt their fishing and hunting locations to take advantage of alternative opportunities in the PRRD (context)*" (Volume 3 Section 24.6.2). What is the potential magnitude and geographic scale of the adaptation required or anticipated?

5) Volume 3 Section 24 states that "*An increase in the use of harvesting areas attributable to the Project is not considered an adverse effect. The Fish and Wildlife branch of the Ministry of Environment manages fish and wildlife harvesting. It is a management objective of the Ministry of Environment to increase participation in fishing and hunting at a provincial level (B.C. Ministry of Forests, Lands and Natural Resources Operations, Environmental Assessment Coordinator 2012b pers. comm.). As a result, mitigation measures by BC Hydro are not warranted.*"

In order to assess the impact of the proposed project on their fishing and hunting at the local level, the NPR&GC needs to know how the increased participation in fishing and hunting will be managed to ensure that their hunting/fishing opportunities and success rates are not adversely affected. Wildlife populations are limited and increased use of an area should not necessarily be viewed as a positive outcome of the proposed project (Table 24.21 Volume 3 Section 24); use of areas and fish and wildlife resources should be locally and regionally sustainable. Further the document does not address issues related to the effects of the redistribution of fish and wildlife harvesting and other non-reservoir based recreational activities on fish and wildlife resources or users in other areas.

6) Information on the number and distribution of fish and wildlife harvested by all resource users (aboriginal and non-aboriginal people) must be identified and integrated into one data base so that the magnitude, patterns of use and, economic value of the current harvest can be assessed. Reliable/accurate estimates of the total harvest for all species in combination with estimates of population size are required to assess the future impacts of the proposed project, other developments, and climate change, etc. on these resources.

7) The economic value of fish and wildlife resources will be underestimated if the actual harvest is underestimated. The value of these resources should include that of the meat and parts that are used by the harvester and not just monies generated through sales of licenses, etc. Subsistence harvesters also contribute to local economies spending money on meat processing, equipment (boats, gear, etc.) and supplies (food, fuel, etc.) to hunt.

8) Baseline conditions were provided for some mammal indicator species (Simpson *et al.* 2013), however, there was a notable absence of baseline data for small mammals (i.e., mice, vole, squirrels, and chipmunks). Therefore it is impossible for the NPR&GC to assess whether there are rare or uncommon species of small mammals that occur within the impact assessment areas and the impact that the proposed project would have on these species at the local, regional, and provincial level. The addition of a small mammal section is requested.

9) Proposed measures to mitigate the impacts of the proposed project on a variety of species are provided throughout the various documents. An integrated mitigation plan must be developed to enable an assessment of:

- i. the magnitude of the monitoring and mitigation required,
- ii. the potential interactions between biological, social and economic mitigations proposed,
- iii. the cost of implementing the plan, and
- iv. the likelihood that the plan will be successful.

The integrated mitigation plan must identify BC Hydro as the agency responsible for funding and implementing the plan until the proposed dam is decommissioned. This plan must be available for review and comment before the EIS is finalized.

10) Many comparisons show that recreational activities in the Peace contribute only a small amount to the Provincial total. However, large population bases will likely have more individuals undertaking an activity (i.e., hunting or fishing) but when numbers are considered as a proportion of total population size the per capita rate may be quite small. For example, population A may have 1,000,000 people of which 1,000 are active fishermen while population B has 1,000 people of which 500 are active fishermen. Population A has twice as many fishermen as population B. However, the per capita rate for population A is 1 fisherman per 1,000 people while that for population B is 500 fishermen per 1,000 people—clearly fishing is a more important activity for people in population B than for population A. User rates should be documented on the basis of past use and applied on a per capita basis as standardized as per capita rates.

Outdoor Recreation is generally recognized as a very high value in the Peace River region and in the project area; as the total numbers of members in the North Peace Rod and Gun Club attests. Additionally the attractiveness of the wildlife resources for residents of British Columbia not resident in the Peace is widely accepted. Use of provincial based participation rates as proposed is unacceptable. Real numbers for participation rates by local and non-local hunters in the region are required for an acceptable assessment.

- Boyce, M.S., Vernier, P.R., Nielsen, S.E. & Schmiegelow, F.K.A. (2002) Evaluating resource selection functions. *Ecological Modelling*, 157, 281-300.
- Johnson, C.J., Seip, D.R. & Boyce, M.S. (2004) A quantitative approach to conservation planning: using resource selection functions to map the distribution of mountain caribou at multiple spatial scales. *Journal of Applied Ecology*, 41, 238-251.
- Simpson, K., Simpson, T.K., Simpson, L., Andrusiak, L., Hilton, S., Kellner, M., Klafki, K., Mattson, I. & Creagh, A. (2013) Part 7. Terrestrial vegetation and wildlife report. Site C Clean Energy Project. Report to BC Hydro, Vancouver, BC. 347.
- Wasser, S.K., Keim, J.L., Taper, M.L. & Lele, S.R. (2011) The influences of wolf predation, habitat loss, and human activity on caribou and moose in the Alberta oils sands. *Frontiers in Ecology and the Environment*, 9, 546-551.