

Lower Churchill Hydroelectric Generation Project
Joint Review Panel

Lower Churchill Joint Review Panel Secretariat, 33 Pippy Place, P.O. Box 8700, St. John's, NL A1B 5J6, Tel: 709-729-7720
Canadian Environmental Assessment Agency, 160 Elgin Street, 22nd Floor, Place Bell Canada, Ottawa, ON K1A 0H3, Tel: 613-948-1364

January 26, 2010

Mr. Todd Burlingame
Manager, Environment and Aboriginal Affairs
Nalcor Energy – Lower Churchill Project
500 Columbus Drive
PO Box 12800
St. John's, NL A1B 0C9

Sent by e-mail: toddburlingame@nalcorenergy.com

Subject: Lower Churchill Hydroelectric Generation Project – Joint Review Panel
Information Requests no. 4

Dear Mr. Burlingame:

As stated in its letter dated January 18, 2010, the Joint Review Panel, after considering all the information and comments received from Nalcor and interested parties, has determined that the information provided by Nalcor is not sufficient. Additional information is required before the Panel can conclude on the sufficiency of the Environmental Impact Statement for the purpose of proceeding to public hearing.

We invite you to provide your responses following the same format as for previous information requests (IRs), referencing IR#, question, and references for each response.

To assist in obtaining the information requested in JRP.151, the Panel will communicate directly with Aboriginal groups to encourage their participation and co-operation in making information on Aboriginal land and resource use available in a timely fashion. The Panel's letters to the Aboriginal groups will be posted on the registry.

Once the Panel receives Nalcor's responses to the information requests, it will make them available to the public. The Panel will review the information and will determine whether to proceed directly to public hearing or to call for an additional consultation period on the supplemental material. When the decision is made to proceed

to public hearing, a notice period of at least 45 days will be given, as per the Panel's Terms of Reference.

Should you have any questions, please contact either of the panel secretariat co-managers, Mr. Thomas Graham or Mrs. Maryse Pineau.

Sincerely,

<original signed by>

Lesley Griffiths
Co-Chair

Herb Clarke
Co-Chair

Lower Churchill Hydroelectric Generation Project Joint Review Panel

INFORMATION REQUESTS (IRs)

| | |
|---|----|
| IR # JRP.146 – Need, Purpose and Rationale for the Project | 2 |
| IR # JRP.147 – Alternatives to the Project..... | 4 |
| IR # JRP.148 – Reservoir Preparation..... | 5 |
| IR # JRP.149 – Project Operating Regime (Water Levels)..... | 7 |
| IR # JRP.150 – Decommissioning..... | 9 |
| IR # JRP.151 – Aboriginal Consultation and Traditional Land and Resource Use..... | 10 |
| IR # JRP.152 – Downstream Effects below Muskrat Falls | 12 |
| IR # JRP.153 – Fish Habitat Compensation Strategy..... | 13 |
| IR # JRP.154 – Ashkui | 14 |
| IR # JRP.155 – Wetlands | 16 |
| IR # JRP.156 – Mercury Levels in Fish | 17 |
| IR # JRP.157 – Red Wine Mountain Caribou | 19 |
| IR # JRP.158 – Rare Plants | 22 |
| IR # JRP.159 – Fluvial Geomorphology (Large-Scale Mass Movements) | 23 |
| IR # JRP.160 – Groundwater in Mud Lake Area | 24 |
| IR # JRP.161 – Economy, Employment and Business..... | 25 |
| IR # JRP.162 – Dam Break | 27 |
| IR # JRP.163 – Cumulative Effects..... | 28 |
| IR # JRP.164 – Monitoring & Follow-up..... | 31 |

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.146 – Need, Purpose and Rationale for the Project

References:

EIS Guidelines, Section 4.3.1 (Need, Purpose and Rationale of the Project) and Section 4.5.1 (Environmental Effects)

Related Comments / Information Requests:

CEAR # 285 (Hydro-Québec)
CEAR # 287 (Grand Riverkeeper Labrador Inc.)
CEAR # 289 (Innu Nation)
CEAR # 291 (Sierra Club Atlantic)

IR # JRP.5, 5S/25S, 7, 7S/85S, 25, 25S, 25S/26S

Rationale:

The Proponent has failed to justify the Project in energy and economic terms and has not provided an assessment of greenhouse gas (GHG) emission reduction in possible export markets as required in the detailed criteria provided in the EIS Guidelines.

Section 4.3.1 of the EIS Guidelines requires the following:

[T]he EIS shall provide a comprehensive explanation of the need, purpose and rationale for the Project. The statement of the project’s justification shall be presented in both energy and economic terms, shall provide a clear description of the methodologies, assumptions and conclusions used in the analysis. (p. 15)

In particular, Sections 4.3.1 (e), (g) and (h) further state that the EIS shall include the following:

- (e) Export market opportunities, forecasts and expected evolution; (...)
- (g) Risks to the Project, in-stream flow variability, market prices and schedule delays, interest rates and other risk factors relevant to the decision to proceed with the Project;
- (h) Projected financial benefits for the Project (including their distribution) as measured by standard financial indicators (p. 15)

Section 4.5.1 of the EIS Guidelines further require the EIS to contain “(...) a description of specific greenhouse gas emissions that the Project will or could offset, the necessary conditions for that offset occurring, and a quantitative net estimate of potential greenhouse gas reductions or increases.” (p. 33)

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

Information Requested:

JRP.5 asked the Proponent for certain specific information required by Sections 4.3.1 (e), (g), (h) of the EIS Guidelines as quoted above. Further, the rationale for JRP.5S/25S stated the following:

The Panel requires more information than was provided by the Proponent in its response to JRP.5. The Proponent is asked to revisit its response to JRP.5 in light of the following clarification.

The Panel appreciates that the Proponent would not, at this time, have in place the firm market and project financing arrangements required for Project sanction (Gate 3 stage), and is not asking for that information. Rather, the Panel is requesting order of magnitude estimates, financial analysis, risk assessments, and sensitivities normally or generally available at the feasibility stage of a Project of this nature.

That information requested has not been supplied but is required in order to assess the Proponent's statements of need in energy and economic terms and to assess environmental effects and benefits. The Proponent may use estimates and assumptions, approximate proportions of energy supplied to various markets and current and projected prices in those markets.

JRP.7 asked the Proponent to provide "a comparative analysis of GHG displacement scenarios for possible electricity markets served and generation sources displaced" and this request was reiterated in JRP.7S/85S when the Panel requested "(...) a detailed analysis of specific sources of energy and associated GHG emissions that could potentially be replaced or avoided by the Project in each of the potential markets for the Project's electricity (including location, capacity, current energy sources and associated GHG emissions), including those with lower emissions such as wind or demand management options". The Proponent has not provided sufficient information in response to either of these requests, to allow the Panel to determine the amount of GHG likely to be displaced by the Project. The Proponent is asked to provide additional information on the anticipated GHG emissions displaced in identified potential markets.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.147 – Alternatives to the Project

References:

EIS Guidelines, Section 4.3.2.1 (Alternatives to the Project)

Related Comments / Information Requests:

CEAR # 285 (Hydro-Québec)
CEAR # 288 (Robin Goodfellow-Baikie)
CEAR # 289 (Innu Nation)
CEAR # 291 (Sierra Club Atlantic)

IR # JRP.26, 26S

Rationale:

Section 4.3.2.1 of the EIS Guidelines requires the Proponent to “include an evaluation of the thresholds for economic viability of the Project and considerations respecting the timing of phases and components of the Project. (...) shall also indicate under what circumstances a change in economic conditions may influence its selection of the preferred alternative.” (p. 16)

In JRP.26 (e), the Panel asked the Proponent to provide the following information: “an evaluation of the thresholds for economic viability of the chosen alternative and considerations respecting the timing of phases and components of the Project, indicating under what circumstances a change in economic conditions may influence selection of the preferred alternative.”

The Proponent’s response was general in nature and did not adequately address the requirements of the EIS Guidelines.

Information Requested:

The Proponent is asked to revisit its response to JRP.26 (e) and provide the evaluation and quantification requested by the Panel and required by Section 4.3.2.1 of the EIS Guidelines.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.148 – Reservoir Preparation

References:

EIS Guidelines, Section 4.3.2.2 (Alternative Means of Carrying Out the Project), Section 4.3.4 (Project Description – Construction), Section 4.5.1 (Environmental Effects) and Section 4.6.1 (Mitigation)

Related Comments / Information Requests:

CEAR # 277 (Fisheries and Oceans Canada)
CEAR # 278 (Memorial University of Newfoundland – John D. Jacobs)
CEAR # 285 (Hydro-Québec)
CEAR # 289 (Innu Nation)
CEAR # 291 (Sierra Club Atlantic)
CEAR # 292 (Environment Canada)
CEAR # 307 (Government of Newfoundland and Labrador)

IR # JRP.6, 28, 33, 37

Rationale:

The Proponent has failed to adequately justify the proposed approach to reservoir clearing as required by the EIS Guidelines and failed to provide all of the information requested by the Panel.

Section 4.3.2.2 of the EIS Guidelines requires the Proponent to “analyze and compare the design alternatives for the Project in relation to their environmental and social costs and benefits, including those alternatives which cost more to build and/or operate but which result in reduced adverse environmental effects or more durable social and economic benefits” (p. 16-17). Section 4.3.2.2 (a) further states that “a selection of reservoir preparation strategies is necessary to address (...) concerns, including economic, technical and environmental considerations which are to be evaluated in order to select and justify the proposed mitigation measures” (p. 17). Section 4.3.2.2 (g) states that the EIS “shall consider a selection of reservoir management strategies, including consideration of scheduling/timing of filling, rate of flow release, and proposed mitigative measures (...)” (p. 18). Section 4.3.4 (a) requires that the Proponent describe “(...) clearing and harvesting strategy and methods (e.g. labour requirements, transportation to processing facilities) and methods for eliminating wood debris” (p. 19).

Also, Section 4.5.1 requires a comprehensive qualitative and quantitative analysis of the predicted environmental effects (positive and negative, direct and indirect, short and long term) on the VECs of each project activity or proposed alternative. Finally, Section 4.6.1 states that the EIS “(...) shall identify and discuss the proposed mitigation measures (...)”, and section 4.6.1 (d) requires a description of the approach to determine, develop and maintain minimum flow requirements (...) including fish habitat maintenance (...)” (p. 36-37).

The Department of Natural Resources (CEAR # 307) states in its review of the response to JRP.33 that since Nalcor cannot “discuss this information request” or provide the information requested (various GIS maps showing proposed infrastructure for reservoir clearing) until early

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

January 2010, they cannot complete their analysis of the adequacy of the reservoir preparation material until that time.

Fisheries and Oceans Canada (DFO) determined that while the responses to JRP.28 are generally adequate, additional information is still required. DFO states that in response to JRP.28 (a) “minor changes in timing [of reservoir impoundment] can have significant implications for fall-spawning fish species” (CEAR # 277, p. 3). The preferred period for impoundment (August to October) extends over two seasons as defined by the Proponent in its comparative analysis (June-August and September-October). However, the Proponent does not indicate why these three months would be preferable to either July or November.

In its review of JRP.28 (c), DFO also stated that the mean annual flows in the Lower Churchill prior to the Upper Churchill are significantly lower than the flows observed in the past 30 years and that the “[m]inimum flows based on these lower flows would result in flows that have not been seen in the past 30 years”. DFO also suggested that a compensation flow based on 30% of more recent mean annual flows would be “significantly higher than the 500m³/s proposed” (CEAR # 277, p. 3).

Information Requested:

The Proponent is asked to provide the following:

- a. A cost-benefit analysis of partial versus full clearing of the reservoir area;
- b. Additional information on the preferred options for storage and eventual disposition of merchantable timber and identification of the preferred option for disposal of slash and implications on methyl mercury, along with a discussion of the advantages and disadvantages of this approach;
- c. A copy of the referenced report and material being prepared for the Department of Natural Resources on the preferred disposal methods and the environmental effects of burying wood waste as opposed to removing it from the site;
- d. Copies of the GIS maps showing proposed infrastructures for reservoir clearing;
- e. A more detailed description of the effects of impoundment on fish and fish habitat by individual month. If the Proponent is committing not to carry out impoundment during certain months, these may be omitted;
- f. A rationale as to why pre-upper Churchill flow levels were used as the baseline for calculating minimum flows during impoundment; and
- g. Additional information on the potential for increased sedimentation of the reservoirs during impoundment and what mitigation is proposed.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.149 – Project Operating Regime (Water Levels)

References:

EIS Guidelines, Section 4.3.1 (Need, Purpose and Rationale of the Project), Section 4.3.5 (Operation and Maintenance) and Section 4.5.1 (Environmental Effects)

Related Comments / Information Requests:

CEAR # 277 (Fisheries and Oceans Canada)
CEAR # 285 (Hydro-Québec)
CEAR # 289 (Innu Nation)

IR # JRP.28, 32

Rationale:

The Proponent has not provided sufficient information on how the required Water Management Agreement could impact the Project and how seasonal fluctuations in reservoir operating levels may impact fish and fish habitat.

Section 4.3.1(g) of the EIS Guidelines raises the issue of “in-stream flow variability” and other risk factors relevant to the decision to proceed with the Project. Section 4.3.5 (a) provides a detailed list of points to be discussed in order to describe the Project’s operating regime and Section 4.3.5 (e) requires that the Proponent describe “all other requirements to operate the Project, including leases, water rentals and insurance” (p. 23). While the Proponent provided some information on the operating regime, little information is presented in the EIS or in the response to JRP.32 regarding the current status of the case before the Newfoundland and Labrador Board of Commissioners of Public Utilities (the Board) regarding the Water Management Agreement, and how an unfavorable outcome could impact the Project’s viability.

Section 4.5.1 requires the Proponent to consider the effects of the Project on fish and fish habitat. Fisheries and Oceans Canada (DFO) determined that, while the responses to JRP.28 are generally adequate, additional information is still required. DFO states that, in the response to JRP.28 (e), there is no description of potential impacts associated with annual fluctuation in reservoir operating levels and during normal operation of the reservoirs: “[t]he proposed drawdown of up to 3 m each spring may seriously harm or destroy eggs that would be laid during the previous fall by some species in shallow waters” (CEAR # 277, p.3).

Information Requested:

The Proponent is asked to provide the following:

- a. An assessment of the role of the pending Water Management Agreement with respect to risks to Project viability and environmental implications;
- b. An assessment of how demand fluctuations, seasonal operating conditions and transitional operating conditions (i.e. for the four year period between the time that Gull Island begins to

Lower Churchill Hydroelectric Generation Project Joint Review Panel

- produce electricity and Muskrat Falls comes online) are to be managed in terms of water flow, and how these fluctuations will impact the river system; and
- c. A more detailed description of the impacts of proposed annual reservoir drawdown and related mitigation measures on fish and fish habitat.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.150 – Decommissioning

References:

EIS Guidelines, Section 4.3.6 (Decommissioning)

Related Comments / Information Requests:

CEAR # 291 (Sierra Club Atlantic)

IR # JRP.40

Rationale:

With respect to decommissioning, the EIS Guidelines require the following from the Proponent: “[t]he EIS will present an approach for the decommissioning phase of the Project, which sets out a commitment to address: environmental planning and mitigation measures; socio-economic mitigation measures; and public health and safety procedure” (p. 23).

Information Requested:

Although the Proponent indicated that there are no plans to decommission Project-related facilities, the Proponent is asked to provide an overview of the range of options that exist for decommissioning hydroelectric facilities, including information on environmental planning and mitigation measures, socio-economic mitigation measures, public health and safety procedures and costs (order of magnitude estimates).

The Proponent is asked to discuss how dam decommissioning would change environmental conditions, whether the pre-Project river system and associated habitats could be re-established and how long this might take.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.151 – Aboriginal Consultation and Traditional Land and Resource Use

References:

EIS Guidelines, Section 4.4.4.4 (Description of the Existing Environment – Land and Resource Use) and Section 4.8 (Consultation with Aboriginal Groups and Communities)

Related Comments / Information Requests:

CEAR # 282 (Labrador Metis Nation)
CEAR # 284 (Nunatsiavut Government)
CEAR # 286 (Uashaunnuat, the Innu Takuaikan Uashat mak Mani-Utenam Band Council and certain Innu families)
CEAR # 289 (Innu Nation)
CEAR # 290 (Innus of Ekuanitshit)

IR # JRP.1, 2, 1S/2S, 3

Rationale:

The EIS Guidelines require the following baseline information on traditional land and resource use:

The Proponent shall describe relevant land and resource use within the study area of the VECs, including the following: (...)
(b) Current use of land and resources (including aquatic resources) by Aboriginal persons for traditional purposes, including location of camps, harvested species and transportation routes; (...)
(p. 28)

With respect to consultation with Aboriginal groups, the EIS Guidelines require the following from the Proponent:

The EIS shall demonstrate the Proponent's understanding of the interests, values, concerns, contemporary and historic activities, Aboriginal traditional knowledge and important issues facing Aboriginal groups, and indicate how these will be considered in planning and carrying out the Project. (...)

To assist in ensuring that the EIS provide the necessary information to address issues of potential concern to these groups, the Proponent shall consult with each group for the purpose of:

(a) Familiarizing the group with the Project and its potential environmental effects;
(b) Identifying any issues of concern regarding potential environmental effects of the Project; and
(c) Identifying what actions the Proponent is proposing to take to address each issue identified, as appropriate.
(p. 40-41)

Lower Churchill Hydroelectric Generation Project Joint Review Panel

The Proponent has not provided adequate information on the current use of lands and resources for traditional purposes by Aboriginal persons and has not carried out adequate consultation with each identified Aboriginal group.

The Proponent indicated that it proposes to implement community consultation agreements with the Quebec Innu and the Labrador Metis Nation and that it continues to address concerns raised by various Aboriginal groups during the consultation process (Response to JRP 1S/2S (a)). In a letter to the Panel dated January 19, 2010 (CEAR # 206), the Proponent provided an update on progress made towards implementation of consultation agreements with the various Aboriginal groups.

The information that the Proponent is planning to gather through the implementation of these agreements is necessary to enable the Panel to assess environmental effects. This contradicts the Proponent's assertion that "(...) Follow-up Programs and Adaptive Management Process within the environmental assessment process are the mechanisms that will allow Nalcor to incorporate information received as a result of the implementation of the consultation agreements" (Response to JRP.1S/2S (c) (ii)).

In response to JRP.2 (a), the Proponent mentions that Project-related information had been provided to the Naskapi Nation of Kawawachikamach in November 2008 and May 2009. Subsequent submissions by the Proponent do not mention the Naskapi Nation.

Information Requested:

The Proponent is asked to submit either full copies of the draft community consultation agreements, or, if Aboriginal groups do not give permission to release the document, a detailed outline of the agreement, together with the workplan the Proponent will follow to gather additional information and fulfill the EIS Guidelines requirements when the agreement is implemented. The Panel requests that the Proponent continue to provide a monthly update on the negotiation and implementation of the proposed community consultation agreements.

The Proponent is asked to continue consultation with Innu Nation, Labrador Metis Nation, the Nunatsiavut Government, and the Quebec Innu in order to (a) report on concerns and issues raised during the consultation process and indicate how the Proponent will address these and, (b) where possible, update information on current traditional land and resource use.

Where an Aboriginal group is unwilling to share this information with the Proponent, the Proponent is asked to indicate whether and how it will support Aboriginal groups to present current land and resource use information directly to the Panel before or at public hearings.

The Proponent is also asked to update the Panel with respect to any consultation activities that may have taken place with the Naskapi Nation since May 2009.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.152 – Downstream Effects below Muskrat Falls

References:

EIS Guidelines, Section 4.4.2 (Study Area)

Related Comments / Information Requests:

CEAR # 277 (Fisheries and Oceans Canada)

CEAR # 282 (Labrador Metis Nation)

CEAR # 284 (Nunatsiavut Government)

CEAR # 285 (Hydro-Quebec)

CEAR # 289 (Innu Nation)

CEAR # 291 (Sierra Club Atlantic)

IR # JRP.43

Rationale:

In JRP.43, the Proponent was asked to provide a more thorough analysis of potential impacts of the Project on the main stem and tributaries below Muskrat Falls, the Goose Bay Estuary and Lake Melville. Comments submitted by Fisheries and Oceans Canada during the additional 30-day consultation period indicate that potential effects of the Project on secondary production, fish productivity and the impacts of possible foodweb shifts in the areas below Muskrat Falls were not addressed in the Proponent's response.

Other reviewers also expressed concerns that the potential for the Project to cause impacts below Muskrat Falls has been minimised, or has not been addressed adequately. In particular, the Nunatsiavut Government expressed concerns that changes to river dynamics could have environmental consequences as far reaching as Lake Melville, which in turn could affect availability, accessibility and quality of country foods for Inuit and affect harvesting and subsistence practices. The Nunatsiavut Government also notes that the inclusion of Inuit Traditional Knowledge may have helped address limitations and uncertainties with respect to predicting effects of the Project beyond the mouth of the Churchill River.

Information Requested:

The Proponent is asked to discuss the potential effects of the Project (including cumulative effects over time) on secondary production, fish productivity and the impacts of possible foodweb shifts in the areas below Muskrat Falls.

To help substantiate its predictions, the Proponent is asked to provide a literature review on the potential for dams to cause long-term and cumulative effects on the productivity of downstream ecosystems, including marine ecosystems. The Proponent should also discuss effects noted in the literature in relation to changes observed by Inuit in the Lake Melville area following the Churchill Falls project (as reported by the Nunatsiavut Government in their submission to the Panel of June 19, 2009, CEAR # 217, Appendix A).

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.153 – Fish Habitat Compensation Strategy

References:

EIS Guidelines, Section 4.6.1 (Environment Protection – Mitigation)

Related Comments / Information Requests:

CEAR # 289 (Innu Nation)

IR # JRP.107

Rationale:

Section 4.6.1 of the EIS Guidelines requires the Proponent to describe fish habitat compensation strategies.

In its response to JRP.107, the Proponent provides an annotated table of contents of its Fish Habitat Compensation Strategy Framework and indicates that discussion and consultations on a mutually agreeable approach to compensation have been ongoing with Fisheries and Oceans Canada (DFO) and the public since the submission of the EIS. The Proponent further indicates that it anticipated that a final Fish Habitat Compensation Strategy will be completed prior to Panel hearings.

The Panel notes that reviewers who submitted comments during the additional 30-day consultation period indicated that it was difficult to provide comments on the Proponent's responses related to fish and fish habitat since negotiations are still ongoing with DFO with respect to the Strategy.

Information Requested:

The Proponent is asked to provide a final Fish Habitat Compensation Strategy prior to scheduling of the public hearings, or in the event that a final strategy is not agreed upon, provide an update on the key components of the Strategy and on the areas of outstanding discussion(s).

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.154 – Ashkui

References:

EIS Guidelines, Section 4.4.4.2 (Description of the Existing Environment – Aquatic Environment)

Related Comments / Information Requests:

CEAR # 287 (Grand Riverkeeper Labrador Inc.)
CEAR # 289 (Innu Nation)
CEAR # 291 (Sierra Club Atlantic)
CEAR # 292 (Environment Canada)

IR # JRP.48, 65, 105

Rationale:

The EIS Guidelines (Section 4.4.4.2) require that the EIS describe “[h]ydrological features such as lakes and streams/ivers, watershed boundaries, river hydrology and hydraulics, bathymetry, surface water flow, flood zones, lake and river ice formation, dynamics and melt patterns, salinity, tides, freshwater mixing zones and delta formation” (p.26), which would include ashkuis. In addition, the Proponent is instructed in Section 4.4.4.4 of the EIS Guidelines to describe “[c]urrent use of land and resources (including aquatic resources) by Aboriginal persons for traditional purposes and “[c]urrent use of land and resources (including aquatic resources) by other land users.” (p.28)

In their submission during the additional 30-day consultation period, the Innu Nation states that “Ashkui are recognized by Innu as important locations for carrying out traditional activities” (CEAR # 289, p. 65) and provided a list of four additional references concerning ashkui that the Proponent did not cite in its response to JRP.48 (see CEAR #289, p.65).

Environment Canada’s submission notes that “the ecological function of the new ashkui may not be the same as those that are lost. Hence, new ashkui may not replace habitat lost when natural ashkui are flooded.” (CEAR # 292, p. 5) The Proponent is referred to this submission for further rationale.

In its response to JRP.65, the Proponent states that “If the results of the follow-up program confirmed the ashkui formation did occur and waterfowl use of the area reached expectations no further action would be taken. If expectations were not met adaptive management measures could be developed based on the data collected to address changes in the mitigation”. However, no specific information on feasible mitigation measures or adaptive management is provided.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

Information Requested:

The Proponent is asked to:

- a. Examine the additional information concerning ashkui as listed by Innu Nation in their submission and incorporate this information into the description and analysis of ashkui where appropriate;
- b. Provide a statement as to whether this new information supports or contradicts the descriptions given and predictions made to date by the Proponent concerning ashkui;
- c. Describe the range of effective mitigation and/or adaptive management measures that could be implemented if monitoring and/or follow-up programs show that new ashkui areas do not form as expected or do not have the same characteristics;
- d. Describe the circumstances under which the Proponent would implement the proposed mitigation and/or adaptive management measures; and
- e. Describe examples from other projects where ashkui conditions were restored after reservoir formation and compare and/or contrast these examples with pre- and post-Project conditions.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.155 – Wetlands

References:

EIS Guidelines, Section 4.4.4.3 (Terrestrial Environment)

Minaskuat Ltd. 2008. *Wetland Assessment and Evaluation*. Prepared for Newfoundland and Labrador Hydro for the Lower Churchill Hydroelectric Generation Project.

Related Comments / Information Requests:

CEAR # 292 (Environment Canada)

IR # JRP.67

Rationale:

The EIS Guidelines (Section 4.4.4.3) require the Proponent to provide information on the composition, distribution and abundance of wetlands and to characterize them in terms of their ecological functions (habitat, water flow regulation, etc.). A previous Information Request asked the Proponent to provide additional information on these wetland-related aspects within the Project area (JRP.67).

The Proponent's response to JRP.67 does not provide all the information requested. In particular, no reference map was provided with the response which made it difficult to determine the location of the wetlands identified in Volume 6 of the response relative to the river and the different Project components. Also, in response to the question of wetland functions (JRP.67 (d)), the Proponent only provides a generic description of wetland functions with no specific information on those wetlands and wetland functions that would potentially be impacted by the Project.

The Panel also notes Environment Canada's comments on the response to JRP.67 which indicate that, based on the information provided by the Proponent, "CWS [Canadian Wildlife Service] cannot determine if the project will cause significant impacts of the abundance and distribution of wetlands and their provisioning of ecological functions" (CEAR # 292, p. 8).

Information Requested:

The Proponent is asked to provide:

- a. A reference map showing the location of all wetlands that would be impacted by the Project;
- b. A summary table of information about these wetlands, including wetland identifier, wetland area, wetland type/class, and specific wetland ecological functions; and
- c. A discussion on the proportions of each wetland type loss or impacted by the Project, and on the ecological and social significance of the loss of these wetlands.

The Proponent may want to update the information contained in Volume 6 of the response and in Appendix E of the Minaskuat Ltd. (2008) report to complete the information requested above.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.156 – Mercury Levels in Fish

References:

EIS Guidelines, Section 4.4.4.2 (Aquatic Environment) and Section 4.4.4.3 (Terrestrial Environment)

Minaskuat Ltd. 2008. *Existing Mercury Concentrations in Osprey and Ecological Risk Assessment*. Prepared for the Lower Churchill Hydroelectric Generation Project.

Related Comments / Information Requests:

CEAR # 292 (Environment Canada)

IR # JRP.20, 21, 22

Rationale:

Sections 4.4.4.2 and 4.4.4.3 of the EIS Guidelines indicate that the Proponent shall describe the relevant components of the environment including mercury concentrations, mobility and fate within the ecosystem.

A number of Information Requests were previously directed to the Proponent related to peak mercury levels and increase factor in fish (JRP.20 and 21) and mercury risks to fish-eating wildlife such as osprey and river otter (JRP.22).

In its comments on the Proponent's response to JRP.20 (a), Environment Canada notes that the Proponent did not re-calculate peak fish mercury values in fish from the Smallwood reservoir using the method requested.

In addition, Environment Canada indicates that, in response to JRP.21 (a) on the regression analysis, the Proponent should have included new data from the Long Spruce or Limestone reservoirs, and should have verified whether a non-linear regression would yield the best fit to the data to predict fish mercury levels for Gull Island and Muskrat Falls reservoirs. Moreover, the Proponent should have substantiated the conclusion that the additional analysis conducted in response to JRP.20 (a) did not result in higher predicted peak increase factors or peak fish mercury concentrations for the Project than those presented in the EIS.

Regarding the response to JRP.22 (b), Environment Canada notes that there appear to be errors in the ecological risk assessment calculations as described in Appendix B of Minaskuat Ltd. (2008) given the Proponent's explanation provided in response to JRP.22 (b). In particular, the Hazard Quotient (HQ) for osprey should be 1.4 instead of 0.67, which indicates a potential risk of mercury toxicity for osprey if the Project proceeds as proposed.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

Information Requested:

The Proponent is asked to:

- a. Re-calculate peak fish mercury levels in the Smallwood reservoir using the method requested by Environment Canada for JRP.20 (a) (Environment Canada specified that $Af/(Q+0.032At)$ should not be used in these re-calculations (CEAR # 292));
- b. Add data from the Long Spruce and Limestone reservoirs to the regression used in response to JRP.21 (a);
- c. Determine whether a non-linear regression would yield the best fit to the data, and to re-calculate the predicted fish mercury levels for Gull Island and Muskrat Falls reservoirs based on the comments provided by Environment Canada on the response to JRP.21 (a);
- d. Re-do regression calculations based on the above (JRP.21 (b)), re-calculate Fish Consumption Advisories (JRP.21 (c)) and ecological risk assessment for mercury (JRP.22 (a)), or substantiate that predicted fish mercury concentrations are unchanged from the original EIS and that there is no need to re-calculate Fish Consumption Advisories, or mercury risks for Osprey and river otter; and
- e. Confirm that the recalculated Hazard Quotient for osprey is 1.4 and re-evaluate the potential risk of mercury toxicity and potential health effects for osprey based on this higher HQ value.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.157 – Red Wine Mountain Caribou

References:

EIS Guidelines, Section 3.1 (Study Strategy and Methodology)

Related Comments / Information Requests:

CEAR # 280 (Protected Areas Association of Newfoundland and Labrador)

CEAR # 287 (Grand Riverkeeper Labrador Inc.)

CEAR # 289 (Innu Nation)

CEAR # 291 (Sierra Club Atlantic)

CEAR # 307 (Government of Newfoundland and Labrador – Wildlife Division)

IR # JRP.93

Rationale:

The EIS Guidelines (Section 3.1) state that the Proponent shall explain and justify all methods used in the preparation of the EIS. Several reviewers, including the Government of Newfoundland and Labrador's Wildlife Division (Wildlife Division), raised concerns with respect to the methodology employed in the modelling of caribou habitat and the determination of significance. The Wildlife Division provided extensive commentary on the methodology employed to assess potential impacts to the Red Wine Mountain (RWM) caribou herd and the Proponent should also refer to CEAR # 307 for additional information and rationale.

Information Request JRP.93 requested that the Proponent address deficiencies in the habitat modelling for RWM Caribou to ensure that conclusions about habitat associations remain valid. While this has been done, several reviewers noted that the dataset used for modelling RWM habitat use represents only a fraction of the RWM herd's range and does not represent the entire Assessment area. The Wildlife Division notes that "as a result, the representativeness of both the caribou use information and the landscape are not reflected, and model results may not be applicable when considered at the scale of the population and the range" (CEAR # 307, p. 7). The Wildlife Division also raised both specific and general concerns that the limited habitat data used in the model reduces the power of the model to detect habitat preferences, and to make inferences regarding habitat selection and avoidance at the population level, particularly where little information pertaining to the stability of the model is provided.

The Wildlife Division presented a critical view of the Sorenson *et al.* (2008) reference cited by the Proponent as supporting their view that there will be no significant impacts to the RWM herd as a result of the Project. The Wildlife Division indicated that the paper has been widely criticized for inaccurately estimating the ability of caribou to persist in ranges that are heavily impacted by industrial developments and furthermore states that, "studies indicate that many of the populations considered stable in Sorenson *et al.* (2008) are actually in decline as the study failed to take into account a time lag in the population response to these changes" (CEAR # 307, p. 9).

While the Proponent and reviewers have noted that the main causes of the current decline of the RWM population is likely linked to the mortality of adult animals, reviewers continue to raise

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

concerns that an expanded industrial footprint and associated human activity within the RWM range may further compromise the population and continue to question the actual risks to this population posed by the Project.

In response to JRP.93, the Proponent states that “although there will likely be local disruptions of movement around construction sites, and a potential reduction in crossing the TLH as a result of increased Project traffic, regional movements are expected to be maintained”. However, the Proponent has not provided data on the proximity of winter or calving ranges to existing and proposed roads and the likelihood of road crossings based on the telemetry data provided to support this statement.

Reviewers also raise concerns with respect to the lack of a broader consideration of habitat disturbance which may lead to an increase in the density of primary wolf prey such as moose, which may result in an increase in more efficient and mobile predators such as wolves.

Information Requested:

1. The Proponent is asked to provide the following technical information with respect to the model:
 - a. The least cost pathway analysis, including an assessment of the use of subjective values rather than likelihood estimates from the Resource Selection Function (RSF);
 - b. Details regarding how lichen estimates were collected or derived and how this information was incorporated with Forestry Inventory stand types;
 - c. A statement as to whether biomass of lichen was measured and if so, how;
 - d. A contingency table summarizing kappa coefficients between validation stations (ELC data) and FI stand types, if these were used to validate FI data and modify habitat categories.
 - e. Definitions of qualifying terms used to describe the quality of caribou habitat;
 - f. An explanation as to why only areas that have burned in the last 30 years are included in the habitat model and the impact this has on predicting available habitat;
 - g. A table that summarizes all of the variables that were initially input into the model (e.g. distance to water bodies and elevation) and provide the thresholds used for collinearity;
 - h. Additional information with respect to the stability of the model;
 - i. Mean relocation interval (and its variation) and range of associated buffer sizes used;
 - j. Revised statements pertaining to the scope of the model inference in order to accurately reflect the limitations of the model;
 - k. The thresholds and their metric (e.g. are the maps probability of occupancy, or do they correspond to each of the three separate validation models?) used to define 'primary' 'secondary' and 'tertiary' habitat suitability; and
 - l. A discussion on the observed suitability of secondary and tertiary habitats based on telemetry data.
2. The Proponent is also asked to discuss the following:
 - a. How the precautionary principle has been applied to the data gaps resulting from the use of a model that does not cover the entire RWM range or the entire assessment area;
 - b. The availability of primary habitat within the RWM range after inundation;

Lower Churchill Hydroelectric Generation Project Joint Review Panel

- c. The broader implications of habitat disturbance, particularly predator-prey interactions, with respect to RWM caribou;
- d. Whether and how the significance determination took into consideration effects of the Project on RWM caribou that may extend beyond the amount of Caribou Habitat within Disturbance Zones of Influence in the Forest Inventory Area (JRP.93, Table 6); and
- e. Further rationale for the “not significant” Project effects determination for RWM Caribou in light of the information requested above.

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.158 – Rare Plants

References:

EIS Guidelines, Section 4.4.4.3 (Terrestrial Environment)

Related Comments / Information Requests:

CEAR # 307 (Government of Newfoundland and Labrador – Wildlife Division)

IR # JRP.42, 103

Rationale:

The EIS Guidelines (Section 4.4.4.3 (j)) state that the Proponent is to describe the composition, distribution and abundance of terrestrial flora, including forest inventories and ecological land classifications. However, the EIS Guidelines (Section 4.4.4.3 (p)) also specify that the Proponent is to describe species of special interest or conservation concern (including their habitat), with an emphasis on rare, vulnerable or threatened species (e.g., species listed in the *Endangered Species Act* or the *Species at Risk Act*). Although no legislatively listed rare species have been found, the Panel has noted the Government of Newfoundland and Labrador’s Wildlife Division concerns that impoundment may potentially extirpate regionally rare species from Labrador. The EIS Guidelines direct the Proponent to place an emphasis on rare species listed under legislation, but does not indicate that other species of conservation concern can be excluded from the assessment.

The Government of Newfoundland and Labrador’s Wildlife Division provided extensive commentary on this topic and the Proponent should also refer to CEAR # 307 for additional rationale.

Information Requested:

The Proponent is asked to:

- a. Establish a list of native rare plants that have been found within the flood zone, species that have a current “S1” ranking in Labrador, and species that are considered newly discovered for Labrador in the Proponent’s research;
- b. Identify which of these species, when compared with the Wildlife Division’s database and Atlantic Canada Conservation Data Centre rankings, are currently considered at extreme risk of extirpation, and identify their underlying ecotypes;
- c. Provide details as to any additional surveys the Proponent plans to undertake to determine whether the identified native “extreme rare” plants are found in other river systems in Labrador (details should include, but not be limited to, timelines and identification of specific river systems to be surveyed and how these results will be incorporated into the analysis of predicted environmental effects);
- d. Provide an analysis of the predicted environmental effects of the Project on plant species identified as “extreme rare”, indicating the rationale for such predictions, where data gaps exist, how they affect the certainty of predicted environmental effects, and how the precautionary principle was applied in making predictions.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.159 – Fluvial Geomorphology (Large-Scale Mass Movements)

References:

EIS Guidelines, Section 4.4.4.3 (Description of the Existing Environment – Terrestrial Environment)

Related Comments / Information Requests:

CEAR # 281 (Natural Resources Canada)

IR # JRP.55

Rationale:

The EIS Guidelines (Section 4.4.4.3) require the Proponent to describe “[a]reas of potential reservoir shoreline erosion and potential ground instability such as slumping or landslides.” (p.27)

The Panel noted Natural Resources Canada’s (NRCan) concern that the issue of large-scale mass movement along the proposed Muskrat Falls reservoir is not adequately addressed in the EIS or in the response to JRP.55. For further rationale, the Proponent is directed to NRCan’s submission (CEAR #281) which provides a context for the issue of large-scale mass movements and presents geomorphic evidence of the scale of the mass movement problem.

Information Requested:

The Proponent is asked to discuss the following:

- a. The impact of earth slide–earth flows of 0.5, 5 and 50 Mm³ on aquatic habitat within the Muskrat Falls reservoir;
- b. The potential heights of landslide-generated waves that can be generated by rapid to very rapid, earth slide-earth flows of magnitude 0.5, 5 and 50 Mm³;
- c. The potential impact of these landslide-generated waves on the Muskrat Falls dam structure;
- d. How the creation and operation (i.e., water level fluctuations) of the Muskrat Falls reservoir affect the stability of the glaciomarine deposits and the potential occurrence of large-scale earth slide–earth flows; and
- e. The geotechnical properties and conditions within the glaciomarine deposits of the lower Churchill River Valley that makes them susceptible to large-scale earth slide–earth flows.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.160 – Groundwater in Mud Lake Area

References:

EIS Guidelines, Section 4.4.4.2 (Description of the Existing Environment – Aquatic Environment), Section 4.4.4.3 (Description of the Existing Environment – Terrestrial Environment) and Section 4.5 (Environmental Effects)

Related Comments / Information Requests:

CEAR # 164 (Unidentified)

CEAR # 174 (V. Kerby)

CEAR # 184 (Sierra Club Atlantic)

CEAR # 203 (Hydro-Québec)

CEAR # 205 (Government of Newfoundland and Labrador – Water Resources Management Division)

IR # JRP.63

Rationale:

The Proponent has not provided information with respect to potential impacts to groundwater in the Mud Lake area.

The EIS Guidelines require that the Proponent describe “[w]ater quality and quantity from both surface and groundwater sources, including any saltwater intrusion up the Churchill River or into aquifers” (p.26) and “[g]roundwater movement and aquifer recharge zones.” (p.27)

The Proponent acknowledged, in its response to JRP.63 (m) and (r), that “the 3D model did not make any reference to groundwater in the zone of salt water intrusion, specifically in reference to the area of Mud Lake. In response to this concern, AMEC will be conducting a study in the fall of 2009 and generating a 3-D numerical groundwater model and a detailed technical report for the area of Mud Lake.”

Information Requested:

The Proponent is asked to provide the results of the AMEC groundwater study conducted in the Fall of 2009, including the 3-D numerical groundwater model and a detailed technical report for the area of Mud Lake. The Proponent should discuss any predicted impacts to the water quality and water quantity on the Mud Lake area and present mitigation as appropriate.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.161 – Economy, Employment and Business

References:

EIS Guidelines, Section 4.3.4 (Project Description – Construction), Section 4.4.4.7 (Description of the Existing Environment – Economy, Employment and Business) and Section 4.5.1 (Environmental Effects)

Related Comments / Information Requests:

CEAR # 282 (Labrador Metis Nation)
CEAR # 284 (Nunatsiavut Government)
CEAR # 285 (Hydro-Québec)
CEAR # 287 (Grand Riverkeeper Labrador Inc.)
CEAR # 289 (Innu Nation)

IR # JRP.5, 12, 29, 39, 106, 131, 132, 133, 140

Rationale:

The Proponent has provided incomplete information in its description of the existing environment and the effects of the Project on the socio-economic environment.

Section 4.3.4 of the EIS Guidelines requires the EIS to show the construction and commissioning schedules for Project elements, based on the most current information available. Subsection 4.3.4 (f) (ii) also requires a description of the anticipated working schedule for Project construction activities. As well, section 4.5.1 notes that “[t]he following should be taken into account when assessing effects of the Project on the socio-economic environment: (...) (c) social and cultural patterns (particular attention shall be given to the comparative adverse and beneficial effects of a major base of employment away from the communities, rotational work schedules, and the presence of large, temporary work forces and contractors in the region).” (p. 33-34) Section 4.4.4.7 requires the Proponent to “describe relevant economy, employment and business elements in the study areas of the VECs, including the following: (...) (d) expenditures in Upper Lake Melville, Labrador and the Province.” (p. 30)

In response to JRP.39 (a), the Proponent indicates that information on work schedules is not available at this time and is subject to contract negotiations. Some indication of the Proponent’s preferred work schedule (s) is required to meet the Guidelines.

In response to JRP.11, the Proponent indicates that the number of direct person-years of employment has increased by about 70% over the 2006 estimate but that labour costs have increased by only 48%. As the Innu Nation pointed out, an increase in labour costs should not greatly affect the increase in person-years of employment unless the project description has changed and this does not appear to be the case.

The Proponent’s response to JRP.5 (a) suggests that the costs of all aspects of the Project were used (and must therefore be available) in the development of the Project’s cost estimate. As well, the response to JRP.131 (a) contains detailed information on inputs to the economic model

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

employed by Strategic Concepts Inc. in the application of its model to the Project. However, the response to JRP132 (a) indicates that “the level of detail available on the quantity and value of specific goods and services required for the project is not known at this time.” This appears to be a contradiction which should be clarified.

Information Requested:

The Proponent is asked to:

- a. Identify and describe the anticipated or preferred work schedule/rotation during construction and reservoir clearing and provide a table showing the relative advantages and disadvantages of different schedules;
- b. Clarify the large increase in person-years of employment as a result of increased Project costs and, if that information is accurate, assess its significance on the socio-economic effects of the Project; and
- c. Explain the apparent contradiction in the responses to JRP.131 (a) and JRP.132 (a), where information referenced in JRP.132 (a) is stated to be not available but was apparently used in the economic model discussed in JRP.131 (a).

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.162 – Dam Break

References:

EIS Guidelines, Section 4.5.2 (Accidents and Malfunctions)

Related Comments / Information Requests:

CEAR # 289 (Innu Nation)

IR # JRP.96, 145

Rationale:

Section 4.5.2 of the EIS Guidelines requires that “[t]he Proponent will identify and describe the potential accidents and malfunctions related to the Project (...) potential consequences (including the potential environmental effects), the worst case scenarios and the effects of these scenarios” (p. 34).

Information Requested:

The Proponent is asked to provide the following:

- a. A copy of the Upper Churchill dam failure study, when it becomes available, and updated dam break model with inundation mapping for cascading dam failure scenarios involving the Upper Churchill, Gull Island and Muskrat Falls;
- b. An outline of integrated emergency planning for these scenarios;
- c. A dam breach analysis for construction phase cofferdams; and
- d. Estimates of economic losses from dam failure (i.e. not just residential dwellings).

Lower Churchill Hydroelectric Generation Project Joint Review Panel

IR # JRP.163 – Cumulative Effects

References:

EIS Guidelines, Section 4.5.3 (Cumulative Effects)

EIS, Volume IIB, Section 5.7.1.2 (Disruption of Movement) and Section 5.15 (Cumulative Environmental Effects)

Canadian Environmental Assessment Agency. *Cumulative Effects Assessment Practitioners' Guide*. 1999. Available online at: <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=43952694-1&toc=hide>.

Canadian Environmental Assessment Agency. *Addressing Cumulative Environment Effects under the Canadian Environmental Assessment*. Operational Policy Statement. 2007. Available online at: <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=1F77F3C2-1>.

Related Comments / Information Requests:

CEAR # 277 (Fisheries and Oceans Canada)
CEAR # 287 (Grand Riverkeeper Labrador Inc.)
CEAR # 289 (Innu Nation)
CEAR # 290 (Innus of Ekuanitshit)

IR # 24S, 44, 97, 97S, 122

Rationale:

With respect to cumulative effects, the EIS Guidelines require the following from the Proponent:

The Proponent shall identify and assess the Project's cumulative environmental effects. Cumulative effects are defined as changes to the environment due to the Project where those overlap, combine or interact with the environmental effects of other existing, past or reasonably foreseeable projects or activities. (...)

The Proponent shall (...) (c) Describe and justify the choice of projects and selected activities for the cumulative effects assessment. These shall include past activities and projects, those being carried out and future projects or activities likely to be carried out; (p. 35)

In its response to JRP.97 (a), the Proponent states that baseline studies included as part of the EIS “provide a comprehensive picture of the existing environment in the CEA Area that has been, in part, influenced by the construction and operation of all past and present projects”.

According to the Cumulative Effects Assessment (CEA) Practitioner's Guide (CEAA, 1999), past actions often become, in practice, part of the existing baseline conditions. However, it is important “to ensure that the effects of these actions are recognised”. The approach taken by the Proponent does not provide a sufficient understanding of how past projects, activities and events

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

(including but not limited to the Churchill Falls project) have shaped current environmental conditions within the Assessment area

With respect to previous hydroelectric generation projects on the Churchill River, the Proponent lists, in response to JRP.44 (c), the specific environmental effects of the Churchill Falls project that are known to overlap with the lower Churchill River area. However, there is limited discussion in the Proponent's response of the environmental conditions that existed in the Assessment area before any hydroelectric development projects occurred. In the absence of specific monitoring programs, Innu Nation suggests that the Proponent make use of a variety of other sources of information, such as maps, research observations, Traditional Knowledge and hydrological records (references provided by Innu Nation, CEAR # 289, p. 60-63).

With respect to the choice of projects and activities selected for inclusion in the CEA, reviewers suggested that additional projects or activities should be considered by the Proponent in the CEA:

- Mining of mineral sands (e.g. Grand River Ironsands project);
- Remediation of contamination at the Department of National Defence's facilities in Happy Valley-Goose Bay;
- Construction of additional transmission lines in Labrador in relation to the export of power from the Project (including for transmission access through Quebec);
- Aluminum smelter;
- Uranium mining; and
- Ongoing dumping of raw sewage in the Churchill River.

While the emphasis should be placed on those projects with the greatest certainty of occurring, the Canadian Environmental Assessment Agency's Operational Policy Statement on addressing cumulative effects (2007) mentions that hypothetical projects (i.e. those for which there is considerable uncertainty whether they will ever proceed) may be discussed, at least on a conceptual basis, because they may contribute to future environmental planning.

With respect to the Proponent's CEA for the Terrestrial Environment, the EIS considers three potential effects resulting from the Project on the KIs (i.e. change in habitat, change in health and mortality) (Volume IIB, Section 5.15). Whereas the disruption of movement is not one of the three potential effects considered, it is unclear as to how this was taken into account specifically within the CEA for caribou, as well as for other migratory species. For example, the response to JRP.97 discusses the CEA area for the Red Wine Mountain and George River caribou herds, stating that "due to the threatened status of caribou and its nature as a species that is likely to have a large portion of its population in one geographic area at one time, the Red Wine Mountains (RWM) Caribou Herd's recent range defines the CEA area for caribou. The CEA examines the George River Herd in this CEA area, given the similar habitat relationships when individuals from this herd overwinter there". However, this CEA area does not appear to include migration routes of these herds. In addition, the EIS states that "disturbance resulting in habitat loss may also force Caribou to travel alternate routes" (Volume IIB, Section 5.7.1.2) and suggests that this issue is relevant for the George River herd, but no cumulative effects assessment of disruption of movement is provided. While the Proponent provides a justification for the exclusion of the Lac Joseph caribou herd from the environmental assessment in its response to JRP.122, as noted by the Innus of Ekuanitshit, the Proponent does not appear to have assessed the potential for cumulative impacts on the Lac Joseph Caribou herd or provided a justification as to why this is not necessary, particularly with respect to migration patterns.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

Information Requested:

The Proponent is asked to describe how past projects, activities and events have affected current ecological and socio-economic conditions. In particular, the Proponent is asked to discuss the environmental conditions that prevailed in the Assessment area prior to hydroelectric developments on the Churchill River.

To the extent that information is available to the Proponent, the Proponent is asked to justify whether or not the projects or activities suggested by reviewers should be included in the CEA and, if so, whether or not it may influence CEA conclusions. Specifically, the Proponent should consider uranium mining in the CEA. For hypothetical projects, the Proponent should discuss how they may contribute to and influence future environmental planning in the region, to the extent that their impacts may overlap with those of the Project.

The Proponent is also asked to explain and provide rationale for the methodology used in the CEA to assess the impacts to migration patterns as a result of the Project in combination with other projects, activities, or events, given the limited spatial boundaries of the CEA area. The Proponent should be specific with respect to the migration patterns of the Lac Joseph, George River and Red Wine Mountain caribou herds, as well as any other migratory KI that would benefit from such a discussion.

Lower Churchill Hydroelectric Generation Project

Joint Review Panel

IR # JRP.164 – Monitoring & Follow-up

References:

EIS Guidelines, Section 4.6.1 (Mitigation) and Section 4.6.4 (Monitoring and Follow-up Programs)

Related Comments / Information Requests:

CEAR # 277 (DFO)
CEAR # 285 (Hydro-Québec)
CEAR # 287 (Grand Riverkeeper Labrador Inc.)
CEAR # 289 (Innu Nation)
CEAR # 291 (Sierra Club Atlantic)
CEAR # 292 (Environment Canada)

IR # JRP.65, 106, 108, 112, 112S, 113

Rationale:

Section 4.6.4 of the EIS Guidelines requires that “The EIS shall describe the environmental and socio-economic monitoring and follow-up programs to be incorporated into construction, operation and maintenance activities. (...) The Proponent shall describe how the results of monitoring and follow-up programs will be used to refine or modify the design and implementation of management plans, mitigation measures and Project operations. (...) The proposed approach for monitoring shall be described (...) The Proponent shall describe plans to maintain communications and working relationships with the affected communities, Aboriginal organizations, municipalities and government agencies throughout the life of the Project. The intent of these plans is to involve those groups in monitoring and follow-up programs, including in the identification and work towards the reduction of adverse physical, biological or socio-economic effects, and enhancement of beneficial effects. (...)” (p.39&40).

With respect to mitigation measures, Section 4.6.1 of the EIS Guidelines requires that “[t]he rationale for and effectiveness of the proposed mitigation and enhancement measures should be discussed and evaluated. (...) The proponent shall identify who is responsible for the implementation of these measures and the system of accountability” (p.37).

The EIS and subsequent responses provide little information on effects monitoring, follow-up and adaptive management for project-related impacts on many aspects of the socio-economic environment, including land and resource use. Such information is required for each program that is needed, as per the EIS Guidelines.

Information Requested:

The Proponent is asked to provide the information required by the EIS Guidelines regarding effects monitoring, follow-up and adaptive management programs needed for management of project-related impacts on the socio-economic environment, including land and resource use. This

Lower Churchill Hydroelectric Generation Project Joint Review Panel

is to include lines of responsibility, accountability and proposed approaches for each program that is needed and proposed involvement of affected parties. Where the Proponent suggests that a government department or agency would carry out the monitoring or follow-up, the Proponent is asked to report on the willingness and capacity of the department to take on this role.

JRP.112 asked the Proponent “(...) to provide table(s) that summarize all proposed monitoring and follow-up programs (...)”. In its response to JRP.112, the section on Monitoring presents some examples of monitoring programs. Based on the list of permits, approvals and authorizations that may be required for the Project (response to JRP.24, table IB-G-1), the Proponent is also asked to provide a table of the proposed monitoring programs for these permits, including, to the extent that information is available, the regulating agency, frequency, duration and geographic extent, reporting, and the Proponent’s role for these different monitoring programs.